

THE POLAR TIMES



Secretary's Letter

It has been a very busy, but rewarding six months since we completed the last Polar Times. Organization of the APS Symposium and awards banquet has kept a number of us hopping—it is going to be an outstanding session. I look forward to meeting you there (Registration forms are on page 22).

The Board of Governors has elected two new Honorary Members—Bob Rutford and Kenny Toovak. They will be formally presented with their awards at the APS Symposium in October—in the meanwhile you can read about them both on page 10.

Selection of articles for this Polar Times was tough. Many thanks to those who submitted material, however, we had about ten times as much available as we could use. We trust that you will find the selection enlightening. We do encourage you to put pen to paper and write. We have articles by Malcolm Browne, our former president, James Van Allen, Abel Shafer and book reviews by John Spettstoesser in this issue.

Keep clipping and writing—you are The Polar Times!

Sincerely

Brian Shoemaker

Editor's Letter

Dear Readers,

In just a few months I will be joining Brian and Johanne Shoemaker at the American Polar Society Symposium. It will be an honor to meet many of my "Heros" of the polar regions and to be present when they receive the recognition they deserve. I'll see you there.

Della Weston

The Polar Times

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The American Polar Society was founded Nov. 29, 1934, to band together all persons interested in polar exploration. Membership dues are \$10 a year (\$12, foreign), and entitle members to receive *The Polar Times* twice a year. The Society is classified as a tax exempt organization under Sec 501(C)3 of the IRS Code.

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About Your Annual Dues

Some clarification is needed about annual dues contributions.

For ease of administration we ask for annual dues to be submitted at the end of each calendar year, and we include a remittance envelope for those whose dues have expired. So if you receive a remittance envelope, fill out the form and include your dues.

Since many of you send in your dues several years in advance, we tag your contributions to our membership files in our computer. This tag prints out on your membership sticker that we place on the envelope for *The Polar Times*. If it reads "expires 1298," then your membership contribution is due in 1999. If it reads "expires 1297," you are in arrears! If in doubt, send in your contributions, and we will credit your account by advancing your expiration date.

Multiple year contributions are welcome as are donations. We are a tax exempt organization as defined by Sec 501(C)3 of the IRS Code. □

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Cover Story

To Study Climate, Freeze Into Arctic Ice

(New York Times, October 28, 1997), by Malcolm W. Browne, **ICE STATION SHEBA, Arctic Ocean**—Hoping to eliminate some major uncertainties in global climate forecasting, scientists from five nations have allowed an icebreaker to be frozen into a floe drifting in the Arctic Ocean, where they will gather a gigantic treasury of data during the coming year.

With luck, their measurements, many made at the cost of acute discomfort, frostbitten fingers and other injuries, will settle some disagreements among theorists about the interaction of the Arctic climate with that of the rest of the world. The year-long program is called SHEBA an acronym for Surface Heat Budget of the Arctic Ocean. It is web of interrelated measurements that will put climate theories to practical tests, perhaps ruling out some theories and confirming others.

An understanding of the dynamics of the Arctic climate, moreover, will allow analysts to make much better use of satellite pictures of the polar ocean, which cannot now reliably distinguish between cloud cover and surface ice. Clouds and sea ice have very different roles in shaping climate, and an improvement in the interpretation of satellite pictures—made possible by comparing them with actual ground observation—would be an important achievement.

Sheba, costing \$19.5 million is by far the most expensive and complex research program ever financed by the National Science Foundation in the Arctic. The work is also supported by the Office of Naval Research, the Japanese Government and other organizations.

The project's 50 scientists, most of them Americans, are gathering data with the help of the icebound icebreaker—an Escort icebreaker and two auxiliary vessels, as well as research aircraft and sounding balloons. Another contributor to the project is the nuclear submarine *Archerfish*, which periodically cruises beneath the floe supporting the Sheba camp, measuring the underside and contours of the ice. (See "Navy Submarine," p. 7—Ed.)

The center of this activity is the Des Groseilliers, a heavy icebreaker of the Canadian Coast Guard that has been chartered by the scientists for one year. The ship rammed its prow into a floe some 320 miles north of the Alaskan coast and shut down its powerful engines on Oct. 2. It will remain here for one year.

Solidly hemmed in by thick ice covering wa-



Ice Station Sheba

ter some 11,000 feet deep, the Des Groseilliers is the first research ship to be deliberately frozen into Arctic pack ice since the great Norwegian explorer and scientist Fridtjof Nansen allowed his wooden ship the *Fram*, to freeze into the ice in 1893 so he could make scientific observations.

The strategy adopted by the Sheba team was to mark out a roughly cylindrical column with a radius of about 30 miles extending from the upper ocean through the ice-covered surface and on up through the clouds to the top of the atmosphere. At the center of this column is the icebreaker. Its position was chosen so the column would include representative samples of thick pack ice, melted surface ponds, open water in cracks (known as leads), many types of snow cover and all possible cloud conditions. The idea is to study intensively a region that typifies the entire Arctic Ocean.

Teams of scientists have deployed thousands of sensors within the column, in the water, in the surface ice and in the air, on towers and balloons. Upward-looking radar and laser beams chart the upper atmosphere.

In the water, sensors continuously measure temperature, salinity and current speeds and directions at various depths.

A network of stress sensors implanted in the ice is continuously measuring stresses that can cause sudden cracks in the ice. Cracks may widen to produce open leads that quickly freeze over as smooth ice, or they may slam closed, with one sheet of ice riding up over its neighbor to create a feature known as a pressure ridge.

"A lead opening nearby would offer us a chance to do science right on our doorstep," said Dr. Donald Perovich of the Army's Cold Regions Research and Engineering Laboratory, who also serves as Sheba's chief scientist. "Leads are vitally important factors in heat transfer, and it would be convenient to have one nearby."

In the air, sensors mounted on towers and in aircraft and suspended from sounding balloons equipped with Global Positioning System receivers record changes in wind direction, velocity, humidity and other conditions at all altitudes, while satellites passing above Sheba generate still more information.

The ice station, a collection of plywood huts, towers, instruments and the icebreaker itself, spread across a rectangular floe about four by nine miles in size, is moving constantly in response to wind, ocean currents and the Coriolis force, an effect of the earth's rotation. It is surrounded on all sides by neighboring floes.

The main thrust of the Sheba program is to gauge the relative importance of various natural feedback mechanisms.

"We can't even be sure whether some of these feedback mechanisms are positive or negative much less know anything about their numerical values," said Taneil Uttal of the National Oceanic and Atmospheric Administration. Mrs. Uttal leads a team of investigators probing the atmosphere and cloud structure using radar and laser beams.

CONT'D. ON NEXT PAGE

Cover Story

Science in the Rough

New York Times, 28 October 1997, p. C6, by Malcolm W. Browne, ICE STATION SHEBA, Arctic Ocean—One blast on the *Des Groseilliers'* powerful horn announces meal time and brings scientists in from the surrounding ice camp for a tasty French Canadian meal. But five short blasts warn that a polar bear has been sighted from the icebreaker's bridge.

Bears are among the complications of conducting a multinational scientific expedition called Sheba, or Surface Heat Budget of the Arctic Ocean. The yearlong series of measurements is directed from the *Des Groseilliers*, an icebreaker frozen into a drifting floe in the Arctic Ocean.

Polar bears, which have been known to attack and eat animals as large as beluga whales, are a potential menace, although they are rare. Only one bear wandered onto this floe in Sheba's first two weeks of operation in October, and it moved off without causing mischief.

When winter closes in, however, bears face starvation, and they have been known to regard people as food. Each scientific party working more than a few dozen yards from the ship is required to carry a rifle.

"Sometimes you can chase them away with a toot on the ship's horn or one of the plastic bear whistles we carry," said Dr. Donald Perovich, Sheba's chief scientist, as he checked on activity in the ice camp from the ship's bridge. "At times, you can chase them off with a snow tractor. People have tried throwing flares at them, but some bears are as curious as kittens—they play with the flares, batting them around until they get bored."

As she turned her back to the wind and tried to rub some circulation back into her nearly frozen fingers, Catherine A. Russell of the National Oceanic and Atmospheric Administration said,

"None of us ever wants to shoot a bear. We just hope they leave us alone."

"None of us ever wants to shoot a bear. We just hope they leave us alone. It's really cold up on this meteorology tower, where we have to tighten fittings with our bare hands. When you're very cold, you can" react to trouble very fast." "Bears are not the only animals the scientists must worry about. As Jacqueline Richter-Menge of the Army's Cold Regions Research and Engineering Laboratory wired empty fruit juice cans over the tops of sensors embedded in the ice, she explained that Arctic foxes were expected in the area. They get hungry and go for the cables that carry data to the recording system," she said. "At some Arctic sites, I've seen them devour insulation and even the cable itself."

As autumn advances, the days grow shorter (sunrise is now about 9 a.m.), and the low daily temperatures have fallen to about minus 20 degrees Fahrenheit. In another month or so, the sun will disappear until spring and temperatures will fall into the minus 60s or lower. When the wind picks up, the bitter cold pierces parkas, numbs fingers and noses, and slows cognition to a crawl. "We call it the Dreaded Arctic Brain Fuzz," said Roger Anderson, a scientist from the Applied Physics Laboratory of the University of Washington with many years of experience in the Arctic.

When fog rolls in, as it often does in late autumn, a coating of rime ice quickly accumulates on decks, hand rails and ladders, making the footing on the ship and out on the floe slippery and dangerous.

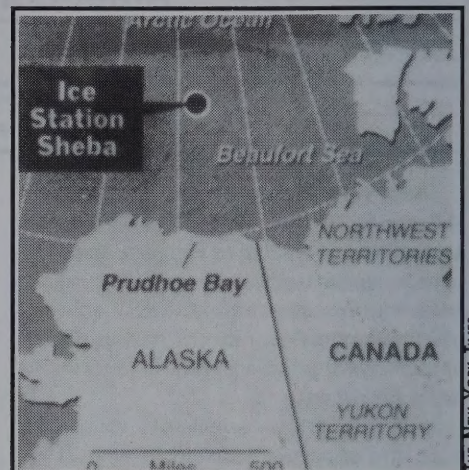
Most of the scientists and technicians who started the Sheba expedition have installed their instruments and are leaving the camp to return to their home universities and agencies. Only a dozen technicians and about 16 members of the ship's

discovered in 1947 and, beginning in 1952, occupied by a party led by Lieut. Col. Joseph O. Fletcher of the Air Force. It was periodically used as a research base until 1974.

Another major climate research program, the Arctic Ice Dynamics Joint Experiment, (AIDJEX) was conducted for a year in 1975-76, and many leaders of the Sheba expedition worked on that experiment.

But no previous research effort in the Arctic Ocean has approached the scope and complexity of Sheba or used a ship embedded in ice as a headquarters.

Dr. Igor A. Melnikov, of the Shirshov Ocea-



Canadian crew will be aboard at any one time during the long, dark winter; those stationed on the ship will be relieved every six weeks or so.

Unlike research sites in Antarctica, where ship and aircraft connections are severed for nine months every winter and "winter-over" personnel are isolated from the outer world, Sheba will remain accessible. Small Twin Otter transport planes from the Alaskan mainland can land on the sea ice here all year, weather permitting.

Although life aboard the frozen-in icebreaker will be reasonably comfortable during the coming year of research, it will still challenge the endurance and strength of those aboard.

The ship is supposed to be able to withstand ice pressures that would crush ordinary ships. Its rounded bottom is designed to let the vessel ride up above the ice as it is squeezed ever tighter.

But the captain currently in command, Rene Turanne, has already felt the ship shudder once or twice as the ice has tightened its grip, and scientific instruments mounted on its deck that require level stands may have to be adjusted throughout the winter.

CONTINUED AT BOTTOM
RIGHT

CONTD. FROM P. 3

"Our work will measure the size of particles in clouds, the thickness of clouds and their optical qualities, the number of cloud layers above the ship and so on," she said. "Combined with measurements being made of the surface ice and of the water beneath us, these should help us know a lot more about Arctic feedback mechanisms."

Although Sheba is the first drifting ice station with a ship at its center since Nansen's day, many ice islands in the high Arctic have served as research stations over the years. The largest of these, named Fletcher's Ice Island, or T-3, was

nography Institute in Moscow, has begun making frequent dives under the ice near the ship to record biological changes during the complete cycle of the seasons.

The flood of data from Sheba is reaching the outer world through a "data policeman," James A. Moore of the University Corporation for Atmospheric Research in Boulder, Colo. Mr. Moore organizes the data in convenient form and quickly moves it to the Internet, where it can be used by scientists everywhere.

"This data will be studied for a good 30 years," Dr. Perovich said. □ (cb Malcolm Browne)

Genesis of the International Geophysical Year

by James A. Van Allen

Secretary's Note: *Watershed events are almost never planned in the course of history; however, recognition of the significance of the event is crucial at the time to carry it to fruition. Herein, Dr. James A. Van Allen modestly narrates the circumstances which led to the International Geophysical Year of 1957-58, the event which, in turn, led to development of continuous and aggressive field research programs in both polar regions since that time. The article was taken from a speech delivered at the 1982 AGU Fall meeting in San Francisco [published in EOS, Vol. 64 No. 50, 13 December 1983] and from comments made by Dr. Van Allen during an oral history interview at the University of Iowa in November 1997.*

Introduction

The plan for a Third International Polar Year, later broadened in scope and renamed the International Geophysical Year 1957-1958, originated on April 5, 1950, at a small dinner party of geophysicists at my home at 1105 Meurilee Lane, Silver Spring, Maryland. The basic concept was put forward by Lloyd V. Berkner. He and Sydney Chapman were principally responsible for developing and enlarging the concept to a persuasive level of detail and potential implementation, with the help of suggestions by others present: Ernest H. Vestine, J. Wallace Joyce, S. Fred Singer, my wife Abigail and myself. I will give a brief account of the context within which this meeting occurred and of the evening's discussion.

First, I will make a few remarks on the circumstances that led to this occasion, beginning with a quotation from an article by Sydney Chapman in *Nature*, August 22, 1953:

Berkner turned to Chapman and said, "Sydney, don't you think that it is about time for another international polar year?"

"In 1882-83, many nations joined in a great international scientific enterprise, the International Polar Year, in which the geophysics of the polar regions—mainly the Arctic—was intensively studied, and expeditions set up [for] polar meteorological, magnetic and auroral stations and operated them for twelve or thirteen months. In 1932-33 the jubilee of this First Polar Year was celebrated by a repetition and extension of the en-

terprise and ionospheric observations were included in the programme."

I am among the few persons here today who participated in the second International Polar Year (IPY) or, indeed, have any personal knowledge of it. My participation was miniscule but it made a deep and durable impression on me.

Following my freshman year at Iowa Wesleyan College, I spent the summer and autumn of 1932 helping Thomas C. Poulter, the professor of physics there, prepare geophysical equipment for the second Byrd Antarctic expedition. This expedition was to have been a part of IPY II, though it actually occurred about two years later, in 1934-1935. My jobs were testing reticles for the observation of meteor trails, a seismograph and a portable magnetometer of the Department of Terrestrial Magnetism (DTM) of the Carnegie Institution of Washington. A number of successful launches were conducted with outstanding results.

After World War II, I organized a research group at the Applied Physics Laboratory (APL) of Johns Hopkins University, using V-2 and Aerobee rockets for high-altitude scientific measurements. A number of successful launches were conducted with outstanding results.

The Dinner

On April 5, 1950 Harry Vestine and Sydney Chapman visited APL in order to learn about the results of our Aerobee rocket flights launched from the *USS Norton Sound* in 1949 to investigate the equatorial electrojet. While visiting my laboratory, Chapman expressed an interest in getting together with us and with

Lloyd Berkner and Wally Joyce for further discussions. I immediately called my wife to confirm a previously tentative plan that she would have the group for dinner at our home. During the day she cleaned the house, prepared a splendid dinner, and managed to feed our two young daughters and tuck them into bed as the guests arrived.

The occasion turned out to be one of the most felicitous and inspiring that I have ever experienced. Berkner was one of the leading experts on ionospheric physics and telecommunications

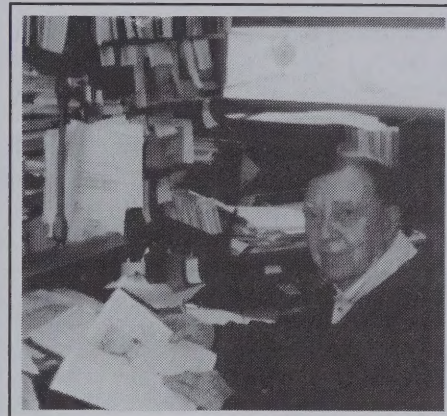


PHOTO: BRIAN SHOEMAKER

Dr. James Van Allen in his office at the University of Iowa

at that time, had been a member of the scientific staff of the first Byrd Antarctic Expedition in 1928-1930, and had extensive experience in international cooperation in science while a member of the U.S. State Department. Joyce was a distinguished geomagnetician who had published the well-known *Manual of Geophysical Prospecting with the Magnetometer* in 1937 and was, as I recall, on the staff of the National Research Council at this time.

The dinner conversation ranged widely over geophysics and especially geomagnetism and ionospheric physics. Following dinner, as we were all sipping brandy in the living room, Berkner turned to Chapman and said, "Sydney, don't you think that it is about time for another international polar year?" Chapman immediately embraced the suggestion, remarking that he had been thinking along the same lines himself. The conversation was then directed to the scope of the enterprise and to practical considerations of how to contact leading individuals in a wide range of international organizations in order to enlist their support. The year 1957-1958, the 25th anniversary of the second polar year and one of anticipated maximum solar activity, was selected. By the close of the evening Chapman, Berkner and Joyce had agreed on the strategy for proceeding. □

Endnote: The vigor and sagacity with which the matter was pursued after the dinner is history, however, Dr. Van Allen gives full credit to his wife Abigail who skillfully created the ambience of the evening which led to revolutionary ideas and inspired others to act upon them.

CONTINUED FROM PREVIOUS PAGE

"We may also have problems with ice under the hull," Captain Turrane said. "Sometimes ice blocks the underwater intakes needed for cooling generators or pipes that discharge sewage.

To clear ice obstructions, he said, an array of

pipes connected to an air compressor may be installed under the ship to release bubbles. The bubbles are supposed to stir up relatively warm water so it will rise and melt the ice on the hull's underside.

Dr. Igor A. Melnikov of the Shirshov Institute of Oceanography in Moscow is the most

experienced diver at the ice camp and may be asked to install the bubble machine under the ship. When informed that he might be needed for this hazardous task, he shrugged, "Sure, that's the kind of thing work in the Arctic requires," he said. □ (Malcolm Brown is the former President of the American Polar Society)

Byrd Center to Make Map of Antarctica

Columbus Dispatch, 21 September 1997,
by David Lore—As a U.S. spacecraft this month begins the first comprehensive charting of Mars, researchers in Columbus are preparing to fill in a major gap in the map of Earth.

With support from U.S. and Canadian space agencies, the Ohio State University's Byrd Polar Research Center plans to produce the first comprehensive, high-resolution radar map of Antarctica, a continent as big as the United States and Mexico combined.

Such a map "has never been done completely, or at one time," said OSU post-doctoral student Rick Forster at the Byrd Center, a member of the Antarctic-1 Mapping Mission project.

The project will be an important step in determining whether the industrial pollution of the last two centuries will cause global warming in the 21st century.

Beginning Friday, Canada's RADARSAT satellite will perform the Antarctic radar survey over 18 days, Forster said.

Thousands of images will be received and processed at a NASA station in Fairbanks, Ala., before being passed on to the Byrd

Center for construction of the map.

NASA is supporting the OSU work with a \$2.8 million grant.

Kenneth Jezek, Byrd Center director, is the principal investigator on the project.

Antarctic-1 will finish RADARSAT's two-year mission to complete a radar map of the world, the Canadian Space Agency said.

*...the satellite can
penetrate cloud cover,
haze and darkness...*

Antarctica had not been mapped earlier because the orbiting radars were not in position to cover the area around the South Pole, south of 78 degrees south latitude, Forster said.

To overcome that, RADARSAT was rotated 180 degrees earlier this month to extend its coverage further south.

By using radar, the satellite can penetrate cloud cover, haze and darkness over the ice continent.

Image resolution is expected to be sufficient to detect objects as small as 26 feet across, including snowmobile tracks left behind by scientific expeditions.

The satellite will be rotated again in about two-years to provide a follow-up map for comparison, Forster said.

The new Antarctic maps will be compared to aerial photographs taken of Antarctica by high-flying U.S. spy planes during the early 1960s. The Defense Department photographs were declassified in 1995.

Although the photographs were taken in polar orbits to monitor Soviet military activities, they are now available on the Internet from the U.S. Geological Survey.

Environmentalists are using them to measure changes in the polar icecaps.

"Anyone can gain access to the data," Jezek told scientists last August in England. "It's an international treasure." □ (cb Peter Anderson)

Everest Conqueror Hospitalized

Associated Press (NY), 11 February 1998, CHRISTCHURCH, New Zealand—Mount Everest conqueror Sir Edmund Hillary was hospitalized in intensive care today with a suspected lung infection after returning from an Antarctic cruise.

Hillary, 78, was taken from the Marco Polo by ambulance after the ship docked from its cruise in the southern oceans.

Hospital officials said the infection may have started as a cold during the trip, then turned to flu. Hillary has imposed a ban on information about his illness.

Late today, Hillary's partner, Lady June Mulgrew, described his condition as stable and "improving." She expected that Hillary would be transferred to a general ward Thursday.

Seven years ago, Hillary suffered altitude sickness and water on his lung during a visit to Nepal.

Knighted for his conquest of the world's highest—29,028-foot—peak with Nepalese sherpa Tenzing Norgay in 1953, Hillary has also led New Zealand expeditions across Antarctica, served as an ambassador and as New Zealand's head of state. □ (cb Billy-Ace Baker)

Nunavut: Inuit Homeland

by Brian Shoemaker

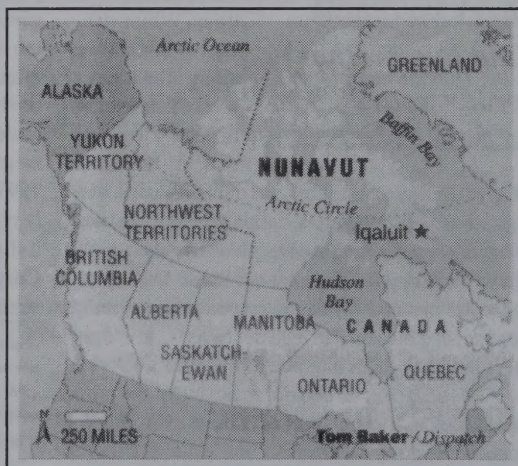
On April 1, 1999, a vast region of the Canadian North will become a political reality. It will be larger than any province—larger than Alaska and farther north. It is called Nunavut, "our land" in the Inuktitut language.

The establishment of a new territory means that the Inuit, "the people" will have control of their own destiny for the first time since Europeans discovered and claimed them.

This vast area will have less than 20,000 people, few settlements and only 12 miles of roads outside its towns. Travel and tourism will be the major industry; however, the traditional hunting and fishing economy will continue to be the mainstay for most. An Inuit guide noted that, "We live off the land, while whites live off money. That's why we worry about the land."

Canadian government aid will be key to establishing territorial government in Nunavut. Both Inuits and whites are concerned that aid will dry up once they are on their own. However, the overall the outlook is optimistic; after all, this will be Nunavut—"Our Land."

We wish them well. □



A Night Among the Icebergs

By Brian Shoemaker

W e all have been regaled by seamen and novelists with harrowing tales of danger and disaster, of ships being crushed and souls lost in freezing seas when encountering icebergs. The recent movie *Titanic* brought this to the forefront of my mind as I packed for my trip to lecture passengers aboard the Russian Research Vessel (RV) *Akademik Ioffe* in waters near the Antarctic Peninsula. Several members of the *Ioffe* crew had worked with Jim Cameron and his staff when the underwater sequences of *Titanic* were filmed from the *Ioffe*'s sister ship, the *Michael Keldysh*. All of the crew of the *Ioffe* had seen the movie, dubbed in Russian, aboard ship and, as we entered Antarctic waters, were well aware of the perils the movie highlighted.

The 1997-98 Antarctic tourist season has been an exceptional year for bergs. Immense "tabulars" can be seen 200 miles north of the South Shetland Islands and to the south, along the Antarctic Peninsula, icebergs are everywhere. Daylight sailing in these conditions has not posed too many problems although we were twice thwarted from sailing through the narrow Lemaire Channel when it was choked with floating ice.

Knowing this, on the night of February 26, we departed Vernadsky Station, heading south for Detaille Island, just across the Antarctic Circle. After dark it began to snow, lightly at first, but big heavy flakes followed after about an hour. The gloom entrapped the vessel, and shadowy silhouettes seemed to hover on both sides as we passed into the Grandidier channel. Our captain, Nikolay Apekhtin, turned on the spotlights, sweeping the horizon ahead and to the sides. The silhouettes took form as icebergs, one after another, emerging from the snowy mists—some dead ahead, some to the left, some to the right, their

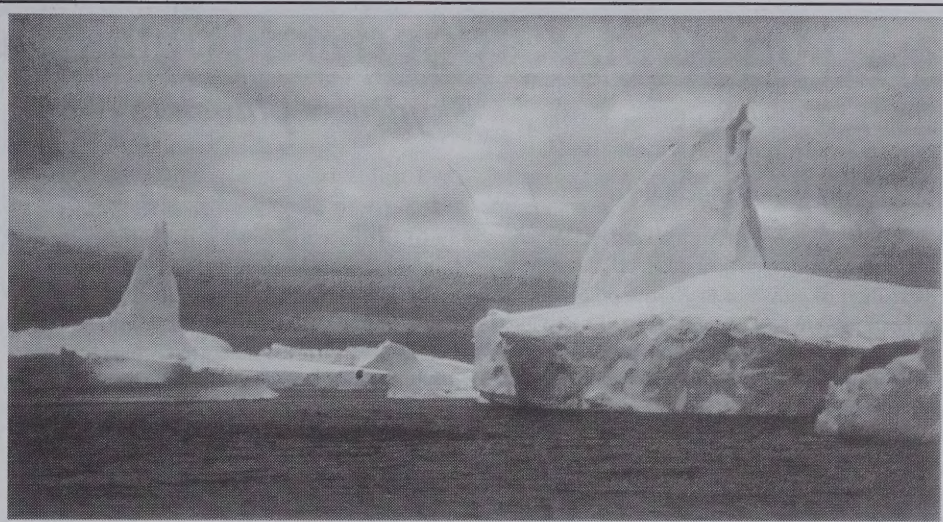


PHOTO: BRIAN SHOEMAKER

Icebergs: Grandidier Channel

underwater "feet" reaching out at us, aiming to crush into us if we blundered. On into the storm sailed the *Ioffe*.

"Come port to 217°, starboard to 220°, port to 210°..." barked Capt. Apekhtin in Russian as he checked the radar and peered ahead through the storm. With over 45 years at sea, Apekhtin projected a commanding presence as he gave his orders. More than 50 passengers stood on the spacious bridge behind the crew, witnessing, in complete silence, the spectacle they had seen in the movie *Titanic*, of icebergs "dead ahead," the crew maneuvering but always avoiding as we passed the bergs along both our port and starboard sides time and time again. Few of the passengers had been to sea before, but all instinctively knew their lives were in the hands of a Master Mariner, Capt. Nikolay Apekhtin.

From the Grandidier channel, into the Harrison Passage, thence the Mudge Passage, creeping through the falling snow by spotlight, dodging icebergs before entering Crystal Sound heading southwest. At first, tension filled the air as we

pushed through "bergy bits" with an occasional "growler berg" echoing down the length of our hull. Soon, however, the atmosphere became relaxed as one by one we realized that Captain Apekhtin was in complete control of the situation and was not dominated by the elements—it was *his* show, not Mother Nature's.

We crossed the Antarctic Circle at 3 a.m. and entered more open waters on a course dead ahead for Detaille Island. Only then did everyone comprehend that they had had the privilege to be part of a real-life iceberg drama that could never be equaled by any hair-raising novelist or movie director intending to transfix an audience to the edge of its seats. Thank you, Capt. Apekhtin! □

Author's note: After visiting Detaille Island the next morning, Capt. Apekhtin took the *Ioffe* on a reverse course back to Vernadsky Station in broad daylight. The weather was perfectly clear. Enroute, I counted 173 bergs that towered higher than the ship, and there were countless smaller ones, all of which could have ripped out our bowels, had we collided with them. We never even scratched the paint.

Navy Submarine to Conduct Scientific Mission in the Arctic

by Subpac Public Affairs

Pearl Harbor, Hawaii (NNS)—*USS Hawkbill* (SSN 666) is preparing to trek to the Arctic for Submarine Arctic Science Cruise (SCICEX) '98. The SCICEX program is a result of a 1994 agreement between the U.S. Navy and the civilian science community calling for five submarine deployments to the Arctic for scientific research. The fourth SCICEX mission aboard *Hawkbill* departs in June and returns in August. The first expedition, SCICEX '95, was hosted by *USS Cavalla* (SSN 684). She carried three Navy

scientist and four civilian scientists on a 63-day mission to the Arctic.

In preparation, *Hawkbill* (See "To Study", p.3 - Ed.) has been converted into a mobile research facility. The sub's torpedo room has been filled with specialized equipment such as the submarine remote video system and a sidescan sonar. With the equipment, scientists will measure water currents, trace water masses, make detailed maps, study food chains and evaluate pollution.

The scientists on this mission are from

Columbia University, Oregon State University, University of Georgia, University of Texas, University of Washington and the United Kingdom's University of Southampton.

The results of the experiments and sampling will benefit both the civilian and military communities.

"The data collected in this five-year program will keep the scientific community busy for the next twenty years," said Campbell. □ (cb Billy-Ace Baker)

Tragedy at South Pole:

Skydivers plunge to death

by Brian Shoemaker

Three skydivers, an Austrian and two Americans, plunged to their deaths while attempting a sky dive at the South pole on December 7, 1997.

The victims were among six sky divers on a jump organized by Adventure Network International which has been flying tourists to South Pole for over 10 years. All six members of the team jumped from a single Twin Otter aircraft from an elevation of approximately 18,000 feet intending to land near the South Pole at an elevation of 9700 feet. The plan was for four divers to free fall while performing formations while two jumped on one chute.

Reports from the scene stated that two of the free-fall divers were still in the free-fall position on impact, the third free fall victim's chute was only partially deployed and that the fourth free-fall diver manually opened his reserve chute in the nick of time when he realized that he was in the "Red Zone". The two tandem divers landed without incident.

The victims were identified as Ray Miller Jr., 43, of Hopewell Township, Ohio, Steve Mulholland, 36, of Seattle and an Austrian, Hanz Ruzek. The surviving free-fall diver is Michael Kearns who lives in northern Virginia. The bodies were taken back to Punta Arenas, Chile, where the Chilean Air Force is conducting an investi-

up. One official at the scene of the accident noted, it is not even clear who has the legal responsibility to deal with the deaths of the parachutists.

Sources said a U.S. medical team attended the three bodies and declared them dead. However, death certificates have not been issued because nobody has responsibility for issuing them. It is also debatable whether the Chilean Air Force has the right or responsibility to deal with conducting the accident investigation.

Parachuting to the South Pole has been a routine operation since IGY. On November 25, 1956, Air Force Technical Sergeant Richard J. Patton, became the first man to parachute to the South Pole. Since that time the U. S. Navy's Antarctic pararescue team has made hundreds of practice training jumps at the South Pole and other sites around the continent, including free-fall jumps from as high as 20,500 feet—all without incident. Indeed, the original South Pole Station was parachuted onto the polar ice cap by U.S. Air Force C-124 Globemasters during Deep Freeze II without a fatal incident. □

Parachuting to the South Pole has been a routine operation since IGY.

gation into the cause of the accident.

The tragedy highlights some debatable international legal issues. The United States, which is usually called upon for rescue of tourists in trouble, discourages private operators from the area, but can do nothing about those who show

Elvis Dinosaur Enters the Building

Columbus Dispatch, 15 April 1998, by David Lore—After 200 million years in cold storage and 71/2 more in reconstructive surgery, *Cryolophosaurus ellioti* crept headfirst into public view yesterday.

During a coming-out party at Ohio's Center of Science and Industry, the massive skull of the cryolophosaur was exhibited for the first time since scientists found it in Antarctica in December 1990.

The skull—topped by a bony crest that earned the beast the nickname "Elvis"—is part of the most complete dinosaur skeleton ever found on the ice continent.

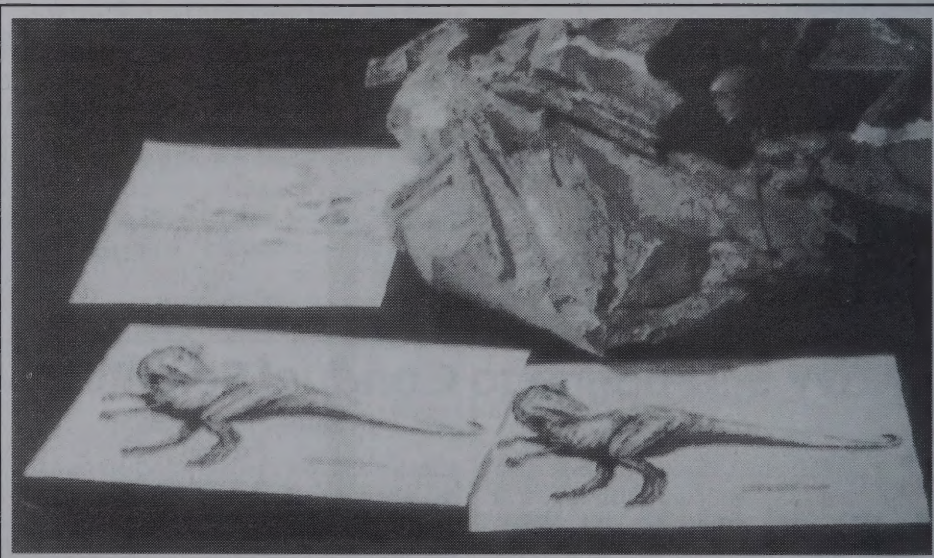
The dinosaur was named for Ohio State University geologist David Elliot, who found the bones on Mount Kirkpatrick some 400 miles from the South Pole.

He described it yesterday as a lucky accident.

While studying rock formations, Elliot came across what appeared to be a huge shoulder blade projecting from the stone at about 12,000 feet.

Paleontologist William Hammer, flown to the mountain to analyze the find, identified the protrusion as the leg bone of an early Jurassic dinosaur, an ancestor of *Tyrannosaurus rex*.

At 22 feet long, *Cryolophosaurus* was no T-Rex but was nevertheless the biggest and baddest carnivore of its day, said Hammer, a professor at Augustana College in Rock Island, Ill.



Drawings show what the cryolophosaur might have looked like when it was alive some 200 million go.

The arrangement of bones at the site indicates this particular cryolophosaur may have died eating its last meal.

The predator apparently either killed or came upon the body of a large plant-eating dinosaur, dragged part of it off to eat and then choked to death as it gulped down the meat.

Hammer's joke that the skull's bony crest looked like Elvis Presley's pompadour haircut gave the dinosaur its nickname.

"That's something I've been trying to live down for a long time," he admitted to museum visitors yesterday. □ (cb Peter Anderson)

Hints of a Nuclear Test in Russian Arctic Are Disputed

New York Times, 21 October 1997, P. A12, by William J. Broad—Civilian scientists are strongly criticizing the Federal Government for saying that a seismic event that rocked the Russian wilds two months ago might have been an underground nuclear blast.

The scientists say the tremor was unquestionably natural in origin, and they suggest that bureaucratic foes of the nuclear test ban treaty are distorting the truth in a bid to torpedo the treaty's ratification in the Senate.

A nuclear test would violate the global accord signed by Moscow that outlaws such detonations.

*...Russia might have
detonated a nuclear
weapon...in the Kara Sea.*

"This test scare should be investigated by Congress and the President," Dr. Jeremy J. Stone, president of the Federation of American Scientists, said yesterday. The federation, a private group in Washington, advocates arms control.

Dr. Lynn R. Sykes, a seismologist at the Lamont-Doherty Earth Observatory of Columbia University and an authority on detecting nuclear blasts with sensitive instruments that monitor ground vibrations, said he had canvassed

peers around the world and could find none who believed the event was nuclear.

Advocates of the Comprehensive Test Ban Treaty contend that it can be policed; its opponents say it cannot. The treaty's goal is to halt the development of new weapons of mass destruction by imposing a global ban on nuclear detonations.

One of the treaty's main tools is an emerging global network of hundreds of seismometers, both public and private, that track ground vibrations. These rumbles are carefully studied to try to find underground nuclear blasts hidden among the natural din of earthquakes, small and large, that occur regularly.

The treaty has been signed by 146 nations, including the United States, Russia, China and the other declared nuclear powers. The Administration recently sent the treaty for ratification to the Senate, which is not expected to act any time soon.

In late August, the Clinton Administration said it had evidence that Russia might have detonated a nuclear weapon on a remote island in the Kara Sea, an arm of the Arctic Ocean, and that it was investigating the matter and seeking an explanation from Moscow. Russia later denied that it had conducted a nuclear blast and reaffirmed its commitment to the test ban.

Yesterday, an intelligence official who spoke on condition he not be identified confirmed that the government is still divided about the event's nature. "We haven't reached a conclusion on whether that event was an explosion or an earthquake," he said. "The data is rather ambiguous."

A civilian scientist recently briefed by the Central Intelligence Agency on the event said that the agency was stretching the truth to the breaking point.

By all accounts, the event was worth worrying about at first. On Aug. 16, in the vicinity of Novaya Zemlya, an Arctic island where Russian maintains a site for underground nuclear testing, the ground heaved and alarm bells quickly went off in Washington.

Meanwhile, further analysis showed that the seismic event was centered not on land but about 80 miles southeast of Novaya Zemlya in the Kara Sea, breaking the link to the Russian test site.

Yesterday, the intelligence official conceded that the event's location was in the Kara Sea but emphasized that the event was still suspicious. "It might have been explosive," he said.

*Russia...denied it had
conducted a nuclear blast*

In contrast, scientists say the distinctive seismic signature of the event clearly makes it natural in origin. Its waves, they say, are characteristic of an earthquake.

"In our view," said Dr. Carl Kaysen, chairman of the Federation of American Scientists, "this event reflects a longstanding cold war practice of acting on semidigested intelligence information which is, inevitably, leaked to justify an alarm after which no sound is heard after the alarm turns out to be false." □ (multiple contributors)

Professor Under Sea Ice

Associated Press (NY), 12 December 1997, ST. LOUIS—Douglas Wartzok works in sub-zero temperatures, trying to uncover the secrets of the underwater world beneath the polar ice.

"We usually try to work when it's warmer than minus-40," Wartzok said.

"When it's colder than that it's hard to be outside much more than an hour."

Wartzok focuses on seals that navigate, feed and breed beneath the Arctic and Antarctic ice. He braves the frigid polar weather to tag seals with acoustic devices and trace their movements.

He and colleagues from the University of Alaska developed the method for capturing and tracking seals in a world so cold and wet that no one had tried to study them.

"Now we can see what they're doing all the time under the ice," he said.

The group does most of its work in the Arctic

between March and June.

Wartzok said the living conditions can be tough in the Arctic, where the scientists live for weeks in a small canvas-roof hut heated only by an oil-burning stove. Solar cells, with a gasoline generator for backup, run the computers and other equipment.

Over the past decade and a half, the scientists have been able to piece together a picture of seal life.

Their research shows that seals spend several minutes foraging for food on the flat ocean bottom hundreds of feet below the surface.

The seals maneuver like experts beneath the ice using their keen vision and have an acute sense of hearing. When blindfolded—to simulate long periods of natural darkness—the seals were able to swim straight lines from hole to hole for more than 100 yards, Wartzok said. □ (cb Peter Anderson and Billy-Ace Baker)

Antarctic Vice

Fairfax (VA) Journal, 6 March 1998, p. A2--Scientists working on Antarctica's Ross Island have discovered a courtship ritual among penguins in which the female requires her suitors to pay for having sex. London's *Daily Telegraph* reported that the females elicit payment in stones which they need for nest platforms to keep their eggs out of the icy waters. Females have been seen slipping away from their mates and approaching the nest of an unpaired male, giving the standard courtship signals of a dip of the head and a coy look from the eye. After mating the female will grab a stone and take it to her nest. Sometimes, satisfied customers allow them to take more than one, and some females have discovered that heavy flirting is enough to persuade more gullible males to part with a rock or two. □ (cb Peter Barretta Jr.)

Mile High View

Antarctic Sun, 29 November 1997, p. 13, by Laura Praderio—Circling the planet every 101 minutes from a height of 830 to 850 kilometers, polar-orbiting satellites sense clouds and sea ice and pick out subtle color changes in the ocean.

These satellites provide global coverage with half-kilometer to one-kilometer resolution. The National Oceanographic Atmospheric Administration and Defense Military satellite Program operate several polar-orbiting satellites. And the satellite data is collected by the gigabyte in McMurdo every day.

Locally it all works using TeraScan, a digital imaging system. Look up at Building 165 in McMurdo and you will see a big white golf ball with SeaSpace (TeraScan's maker) written on it. This new dome houses an antenna that receives multiple channels of satellite data.

by piecing together unique views of weather from space," said George Howard, a Meteorologist. "We easily manipulate the data to produce images and create movie loops of the weather moving across the continent."

The satellite data serves another function by providing researchers with data for studying oceanic events. One of the main research efforts is NASA's Sea-Viewing Wide Field-of-View Sensor Project or SeaWiFS. Subtle variations in ocean color, picked up by the satellite sensors as changes in chlorophyll concentration, help scientists differentiate between different types of marine organisms. The abundance of phytoplankton can be derived from the concentration of plant pigments in the water. In the polar regions, sensors detect blooms of phytoplankton seasonally. As one of the primary producers on the food chain, phytoplank-

Our primary use of satellite data is to provide real-time weather data...

"Our primary use of satellite data is to provide real-time weather imagery for MacWeather to support forecasting for flight operations. The secondary use is to archive the satellite data for the Antarctic and Arctic Research Center at Scripps Institute of Oceanography in San Diego, CA," said Andy Archer, an Imaging Applications Specialist. "The Antarctic area is a transition zone for the whole planet; with our data acquisition systems we can provide imaging for oceanic and atmospheric events that scientists can use to look for global effects."

Using TeraScan, meteorologists and forecasters produce real-time imagery of the local and continental weather. "We use it as a forecast tool

ton are the start to bringing some fish to market.

Satellite imagery can also help scientists narrow down sites to sample in the ocean. "What we'd like to do is receive the satellite data, process it near real-time, and send the images to the principal investigator (PI) on the ship. The PI can view the image and modify the cruise plan to match the dynamics of the environment. Instead of hunting around for a hole in the sea ice (polynia), the imagery could direct them to navigate through the ice and target blooms and areas of interest," said Archer.

TeraScan is the link between the raw satellite data and the processed imagery. It gives us that five-hundred-mile-high view. □ (cb Billy-Ace Baker)

Whale Meat Lunch

Associated Press (NY) 16 December 1997, TOKYO—In an effort to pass on Japanese traditions, officials in one southern city have announced an addition to the school lunch menu: whale meat.

The whale meat will be offered early next year on a special one-day menu for 25,000 elementary and junior high school students in Shimonoseki, said a city official who spoke on condition of anonymity.

The plan is designed to inculcate a sense of pride in Shimonoseki's historical role as a major port for Antarctic whaling ships, the official said.

The city is on the Sea of Japan, 520 miles southwest of Tokyo.

Japanese children were regularly served whale meat for lunch up until late 1950s, but the meat was gradually removed from school menus amid international criticism against commercial whaling.

Japan has agreed to an international ban on whaling, but continues to allow limited whale hunting for research purposes. Meat from the slain research whales is often sold at fish markets. □ (cb Peter Anderson and Billy-Ace Baker)

Honorary Members Nominated

Robert H. Rutford

The Board of Governors of the American Polar Society has approved the nomination of Robert H. Rutford, Ph.D., for Honorary Membership.

In 1954, as a First Lieutenant in the Army, he participated in several long exploratory tractor traverses in Greenland. This led him to Antarctica in 1959, where he studied the glacial geology and geomorphology of the Ellsworth Mountains.

Since that time he has returned to Antarctica fourteen times to conduct field research. In 1972 he moved to the University of Nebraska where he headed up the Ross Ice Shelf Project which was centered there. This was a large and critical multi-institutional and international scientific research project. He was also involved with the founding of the Polar Ice Coring Office (PICO), an activity that focused on ice drilling in both polar regions and that has resulted in much fundamental data that are used for numerous investigations, especially paleoclimatology.

In April 1975 Prof. Rutford became Director of the Division of Polar Programs at the National Science Foundation. In this capacity he directed all NSF research in the Arctic and the Antarctic. His service to the polar research community has continued through numerous committees and boards including a tour as Chairman of the Polar Research Board of the National Research Council. He has been the United States Representative to the Scientific Committee on Antarctic Research (SCAR) since 1986 and has attended every SCAR meeting since 1970. □

Kenneth Utuayuk Toovak

The Board of Directors of the American Polar Society has approved the nomination of Kenneth Utuayuk Toovak for Honorary Membership.

Mr. Toovak, an Inupiaq from Point Barrow, began working with field research parties on the North Slope of Alaska in 1944 and was the mainstay of most science camps fielded from Barrow for fifty years. He was a "plankowner" at the formation of the Naval Arctic Research Laboratory in 1947 and participated in the launching and science support of every "ice station" managed by NARL, including T-3, Ice Station Alpha, ARLIS II, and AIDJEX.

Kenny, a natural leader, served as a mentor for many field researchers who began their careers in the Arctic. Not only did he show them how to work and survive in the cold, but he "provided scientific insight" based on Eskimo knowledge that often redirected the research process. In so doing he grounded several generations of young scientists and shaped their entire future.

He has lived his entire life at Barrow and today is revered as one of the "Elders" of the community. □

Alaskan Children Want Balto Back

Columbus Dispatch, 8 March 1998, by Donna Glenn, CLEVELAND—A dog that saved a town, inspired an annual international race and died 65 years ago is at the center of an emotional tug of war between schoolchildren in Alaska and a Cleveland museum.

Both Butte, Alaska, and Cleveland want Balto, the Alaskan mutt that became an international hero on Feb. 2, 1925, when he led the final leg of a sled run across 675 miles of icy wilderness to carry diphtheria serum to the stricken residents of Nome, Alaska.

Balto has been in Cleveland since 1927, thanks to city school children's efforts to rescue him from an abusive vaudeville promoter in Los Angeles.

The dog lived at the Brookside Zoo until his death on March 14, 1933. His body was donated to the Cleveland Museum of Natural History, where it was mounted and now is displayed along with newsreel and photographs of the serum run.

"Couldn't the dog come back to Alaska?" third-grader Cody McGinn asked his teacher at Butte Elementary School, Dwight Homstad, a few weeks ago.

Cleveland's response was kind but emphatic.

"No," said museum Director James E. King. "He's one of our treasures. He's a part of Cleveland."

Indeed. Schoolchildren of Cleveland gathered the pennies, nickels and dimes needed to save the "Heroes of Alaska" after businessman George Kimble discovered them at a Los Angeles dime-a-view side show.

They were shipped to Cleveland where they lived out their lives in comfort in a specially built area at Brookside Zoo.

Bernard Rosenberg, now 85 and a security guard at the museum, was 14 when he donated about 25 cents to the rescue effort.

"It was very exciting," Rosenberg recalled. "It was, well, romantic for the children."

That excitement was evident in the voices of schoolchildren who visited Balto's display at the Cleveland museum last week.

Unlike the Butte children, who apparently knew only about the dog's Alaskan adventure, Cleveland area children know Balto's whole story, King said.

"There's a whole second half to this that they know nothing about," he said about the pupils in Alaska.

Cody McGinn, 9, of Butte, was surprised to learn that a sled dog was among the famous when he read *Five True Dog Stories* for a book report.



Balto on display at the Cleveland Museum of Natural History

He wanted to know more, so his mother searched the Internet.

He learned that on Jan. 20, 1925, icebound Nome telegraphed a plea for help. A diphtheria epidemic was raging through the village of about 1,400 on the Seward Peninsula.

Seattle had the serum, but a fierce storm struck the Nome region, making air delivery impossible.

In all, 20 mushers (sled drivers) and more than 180 sled dogs hauled 300,000 units of the serum to Nome from the railroad station at Nenana, Alaska, in about five days.

The world listened for news about the sled run in nail-biting awe, said JoAnn Coburn, education director at the Cleveland Museum.

"In the days before TV it was still a very dramatic story," she said. "It was one of those worldwide human interest stories that grips everybody."

Cody's question led to a letter-writing exercise by Homstad's combined second- and third-grade class.

The teacher and 19 pupils took a field trip to

the Iditarod museum to learn more about the famous trail, which was a mail route between Anchorage and Nome in the early part of the century.

The Alaskan children collected nearly 1,400 signatures on petitions they circulated in support of returning Balto permanently, and they are working with Alaska state Rep. Scott Ogan on a formal resolution requesting the dog's return.

Meanwhile, Balto will return to Alaska in October on a loan agreement for a six-month stay at the Anchorage Museum of History and Art. □ (cb Peter Anderson)

*The world listened for news
about the sled run
in nail-biting awe...*

Did You Know...

The Central Park Wildlife Center in New York City maintains an enclosed penguin exhibit with about 20 gentoos and 20 chinstraps. A large glass picture window at the front provides a good view of the penguins as they swim underwater. Feeding is twice daily, with capelin, herring, and mackerel, plus vitamins and salt tablet supplements. □ (from Montreal Antarctic Society Newsletter)

Get Ready for Shackleton-Mania

Wall Street Journal, 2 April 1998, "Marketplace," by Stephanie Capparell—When an experimental high school opened in Boston earlier this year, it took its name and philosophy from an Antarctic explorer whose feats went all but unnoticed for most of this century: Sir Ernest Shackleton.

It was just one sign of a surging tide of obsessive interest in the Anglo-Irishman who, in 1914, headed an ill-fated expedition to Antarctica. Shackleton led his 27-man crew through a harrowing two-year trip to safety after being stranded on ice floes when their ship, the *HMS Endurance*, sank in the ice Weddell Sea, 1,200 miles from the fringes of civilization.

Suddenly Shackleton is being honored in every conceivable venue: children's books, biographies, an exhibit at New York's American Museum of Natural History, a new wing of a Cambridge University library, and documentaries. The Exploration and Travel auction at Christie's in London next Wednesday will feature several Shackleton items. Next year, Columbia TriStar Motion Picture Group expects to start shooting a big-budget feature about the *Endurance* journey, directed by Wolfgang Petersen, who made "Das Boot," and "In the Line of Fire."

Why is Shackleton's fame growing now, more than 80 years after the *Endurance* voyage? And why honor as a great leader a man who failed to reach nearly every goal he set and whose greatest achievement was little appreciated in his lifetime?

Shackleton is more suited to today's zeitgeist, suggests Edward Burlingame, the former publisher and editor-in-chief of Harper & Row who now publishes the Adventure Library subscription-book series.

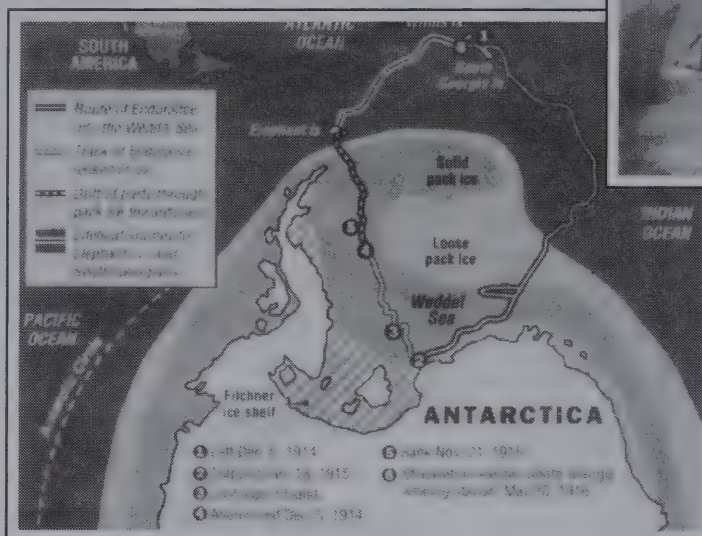
"The public is hungry, not so much for the political values that separate people," he says, but for the core values that unite people: leadership, perseverance, moral or physical courage."

In 1994, to launch the Adventure Library, based in North Salem, N.Y., Mr. Burlingame reprinted an elaborate hardcover edition of "Endurance: Shackleton's Incredible Voyage," a 1959 work by Alfred Lansing. He later wowed a roomful of middle managers at a Chicago leadership conference with a lecture on the story, selling hundreds of books afterward.

This year, Carroll & Graf Publishers Inc., New York, expects to sell 50,000 copies of its own paperback reprint of the Lansing book. Up to



Ernest Shackleton



SOURCE: "TRAPPED BY THE ICE" BY MICHAEL MCCURDY, WALKER & CO., N.Y.

now, it has typically sold about 9,000 copies annually, says Herman Graf, president. In May, the company is also reprinting the 1985 biography, "Shackleton," by Roland Huntford.

Tourists to Antarctica become fascinated with the literature and memorabilia of the region and feed the Shackleton craze. Since its founding four years ago, about 300 people worldwide have be-

come paying members of the James Caird Society, a group in the United Kingdom named for the expedition's main lifeboat. The group's founder, 89-year-old Harding Dunnett, calls members "Shackletonians." He first became aware of the explorer at the age of 70.

Shackleton set out at age 40 to make what he considered the last great exploration left: a 1,500-mile crossing of Antarctica. The ship set sail from England in August 1914, and by January got stuck "like an almond in a piece of toffee," according to a crew member, in an ice pack one day's sail from its destination on the Antarctic coast. It sank 11 months later. There was no radio contact, and no one knew where they were.

Shackleton's gift was to rally and maintain

the morale of his crew, to a point where they even played soccer on the ice floe. He did it without losing a single man—to death or to starvation, scurvy, madness and mutiny that plagued other ill-fated expeditions.

"Not a life lost, and we have been through Hell," Shackleton later wrote.

The media-savvy Shackleton had sold rights to the still photographs and film footage taken on the expedition. Mr. Hurley, the expedition photographer, had a darkroom aboard, and when the ship went down, he dove in to save his glass-plate negatives. Through all the hardships, he continued shooting with a Kodak Vest Pocket camera.

Shackleton was a master at creating his own myth. He told his men after their rescue not to change clothes or shave "so that they could appear in their wild, romantic state," writes Shackleton's biographer, Mr. Huntford. He then called ahead to Punta Arenas, Chile, giving their time of arrival so that crowds might gather.

Shackleton also had a rough side that fans relish. Sara Wheeler of London, an Antarctic traveler and author of the just-published *Terra Incognita*, says, "He smoked too much, he drank too much, he slept with other people's wives. That's why we like him; he's like us." □ (multiple contributors)

"The public is hungry...for the core values that unite people: leadership, perseverance, moral or physical courage."

BOOK REVIEW



Mrs. Chippy's Last Expedition

Author: Caroline Alexander; Harper Collins, New York, NY; 149 pp.; \$16.00. ISBN 0-06-017546-X

The remarkable journal of Shackleton's polar-bound cat

Sir Ernest Shackleton's 1914 subzero expedition to Antarctica is regarded as one of the most perilous in history. After sailing halfway around the world, Shackleton's ship *Endurance* became trapped in a quick-freezing sea of ice. Over the course of nearly ten long months, the ice thickened around the ship until its hull was eventually crushed, and the ship went down. All twenty-nine crewmembers were pushed to their limits to survive...including the level-headed, quick-thinking Mrs. Chippy, the ship's robust (male) cat.

Mrs. Chippy was no ordinary polar explorer, as evidenced from his magnificent diary, published here in its fully annotated form. In his official expeditionary capacity, Mrs. Chippy worked as a carpenter's mate with shipwright Harry "Chips" McNeish. Together they skillfully executed all projects from building new ship quarters to repairing the *Endurance*. But Mrs. Chippy's vital duties went much further: monitoring the noisy sled dogs, climbing the rigging to survey the ice, watching for birds and penguins, and, essential to the expedition's success, patrolling the hold for stray mice. In this honestly crafted, compelling diary, Mrs. Chippy reveals that his role was crucial—but at no time does he flaunt his intellectual superiority over his well-meaning and hardworking crewmates. The days were long, but Chippy held the ship together.

Illustrated with authentic photographs and closely based on the true events of Shackleton's journey, *Mrs. Chippy's Last Expedition* is a superbly written cat memoir that will take its place in the annals of fine expeditionary cat literature. □ (cb Janet Baldwin, *The Explorer's Club*)

Deep Freeze Decommissioned



by Brian Shoemaker

On behalf of all who served

12 March 1998, PT HUENEME, Calif—The Naval Support Force Antarctica, more popularly known as "Operation Deep Freeze," was decommissioned today.

The command was commissioned in 1955 to support United States research efforts during the then-upcoming International Geophysical Year planned for 1957-58. The Commander of the Naval Support Force wore the broader hat as Commander Military Support Force Antarctica and as such was in command of all U.S. military and Coast Guard units south of 60°S.

However, in popular jargon neither of these titles stuck—Walt Disney personally got into the act and named the command *Operation Deep Freeze*, a title which is proudly used by all who have served.

When Deep Freeze sailed south in 1955 the continent of Antarctica was 80 percent unexplored in a geographical sense and very little was known

in a scientific sense. The United States had no bases there although, under the leadership of Admiral Byrd, it had become the most active nation on the continent.

Today, the surface of the continent has been seen from the air, and the surface features have been mapped. The research community that Deep Freeze was created to support has led the world in unlocking the inner secrets of the Antarctic.

It was a team effort from the beginning, and in the field the roles of scientists and navy personnel were intertwined—they became a team that mutually respected one another. There was a special camaraderie in being an Antarctic. The Secretary of the Navy appealed to the Congress for the issuance of the Antarctic Service Medal which all Antarcticans, civilian and navy, proudly wear.

It was not without cost—Antarctica is not a benign operating environment. Sailors and scientists flew together and died together. Fifty-eight were lost in aircraft accidents in the pursuit of knowledge. Others were lost "on the ice".

After 43 years the navy is pulling out. Old hands do not like the thought, but they understand why. They look back, however, and stand tall—proud of the trail they have blazed. The Air Force has taken over the responsibility of the Military Support Force, and the New York Air Guard will be doing the flying.

We wish the Air Force well. We wish all old "Deep Freezers" fair winds and following seas. □

(See "Air National Guard," p. 18—Ed.)

Russians Cross Bering Strait

Associated Press, 26 March 1998, ANCHORAGE, Alaska—A Russian father and son team braved close encounters with polar bears and a plunge through the sea ice to complete the first known crossing of the Bering Strait on skis.

Dmitry Shparo, 56, and Matvey Shparo, 24, left Uelen on the eastern coast of Siberia on March 1 and arrived Saturday, nearly three weeks later, at Cape Thompson, 150 miles to the east.

This attempt to cross the frozen Chukchi Sea went smoother than efforts in the previous two years, which ended with helicopter rescues.

The two said from Anchorage Tuesday that they saw polar bears each day, including one that stuck its huge nose in their tent the night of March 5.

The Shparos believe the polar bear was hunting them and they were saved by headlamps switched on when they heard footsteps. The bear ran off after the younger Shparo fired a warning shot with a rifle.

"All next nights, we sleep not well," Dmitry said. "Wind all the time, and many sounds outside the tent. We think again steps, again steps."

At one point, they broke through the ice.

"No good for us because impossible to dry boots," Dmitry said. "Fortunately, it was not very cold."

Still, they stuck to their schedule of traveling from daylight to dusk every day, checking their coordinates with a handheld Global Positioning System receiver and tracking due east—even as the ice moved them constantly north and made them walk a total of 300 miles.

Gordon Thomas, a coordinator for the duo's crossing, said adventurers may have skied the three miles between the Russian Island of Big Diomed and Alaska's Little Diomed island, but none have trekked so far across the Chukchi Sea. □ (cb Billy-Ace Baker)

Birth of a Science, Birth of a Nation

The Jesup Expedition turns 100

U.S. News & World Report, 1 December 1997, p. 64, by Nancy Shute—In 1897, a young anthropologist named Franz Boas came to financier Morris Jesup with an urgent appeal: The native cultures of the North Pacific, Boas said, were being supplanted by Western civilization. There might not be another chance to verify the migrations of the first North Americans, tracing them back across the Bering Strait to Asia.

Jesup, a banking mogul who headed New York's American Museum of Natural History, bought Boas's pitch and agreed to finance the most ambitious anthropological enterprise in American history. From 1897 to 1902, the Jesup North Pacific Expedition swept from the Northwest Coast of British Columbia to Siberia, gathering artifacts, internets, recordings, and photographs.

This trove of treasures has not been gathering dust. The Jesup archive is fueling a renaissance in North Pacific research, much of it undertaken by native people intent on rediscovering their past. Last week, scholars and residents of the region came together to commemorate the expedition's enduring significance at the New York museum (Jesup photographs are on display there through March 1, 1998.)

The people of the Far North were not in fact wiped out.

The expedition made Boas's reputation as the father of modern anthropology; he went on to teach Margaret Mead and many others. Boas turned out to be wrong about one key point, however: The people of the Far North were not in fact wiped out. Their icy land proved far less amenable to settlement than anticipated. And their cultures endured despite decades of efforts to assimilate them: punishing children for speaking native languages; suppressing native religions; supplanting their subsistence economy of hunting and fishing with a cash economy and welfare (in the United States) or socialist make-work (in the Soviet Union). Even so, only seven of the region's original 79 languages still are spoken regularly, and televisions now are more common than hunting rifles.

The Jesup researchers endured terrible hardships for science. Russian ethnographer Waldemar Bogoras, who with his wife, Sofia, pioneered fieldwork in Siberia, dryly described conditions during a summer on the tundra with the Chukchi reindeer herders as "unfavorable"; during their stay, 30 percent of the Chukchi died from a measles epidemic. But the meticulously detailed books and monographs by Bogoras and Waldemar Jochelson, another key Russian researcher, remain the definitive human histories of the region.

Native scholars from Alaska and Russia are using the Jesup collection to rebuild their own history

Rediscovery. These days, anthropologists acknowledge their intellectual debt to Boas but deplore his obsession with collecting objects rather than analyzing how cultures work. That Boas dragged so much booty back, however, has created an opportunity he would never have imagined: Native scholars from Alaska and Russia are using the Jesup collection to rebuild their own history. In Yakutia, in far northern Siberia, seamstresses used photographs of clothing from the the New York museum collection to construct traditional garments that no longer existed at home. Indigenous people also hope to use Jesup materials to bolster cultural revival movements, which are gaining strength at a time when the North Pacific again is undergoing tremendous social change and economic disarray, particularly in the former Soviet Union. "Much of our history is in this museum, and our young people are very interested in it," says Vladimir Etylen, a Chukchi activist from Anadyr, in the Russian Far East. "They can't go to the museum, but they should be able to see this through photos, videos, writings."

William Fitzhugh, director of the Smithsonian Institution's Arctic Studies Center, anticipates that in the near future much research and scholarship will be conducted by local people like Etylen, with outside scientists acting only as consultants. "If we do it right, we'll just be the hired hands," Fitzhugh says. □ (cb by Johanne Shoemaker)

Replacement of U.S. South Pole Station

Antarctic (New Zealand Antarctic Society), Vol. 15 No. 3, 1997, p. 55—It will take eight years to replace the sinking US South Pole station which is more than 20 years old.

Pollution, waste disposal, safety considerations and fuel storage need to be addressed, but are hampered by decreasing funds as a result of changing scientific priorities.

The National Science Foundation is seeking ways to achieve the improvements required for safety and environmental preservation without sacrificing the programmer on global warming, ice sheet melting, ozone depletion and the study of galaxies.

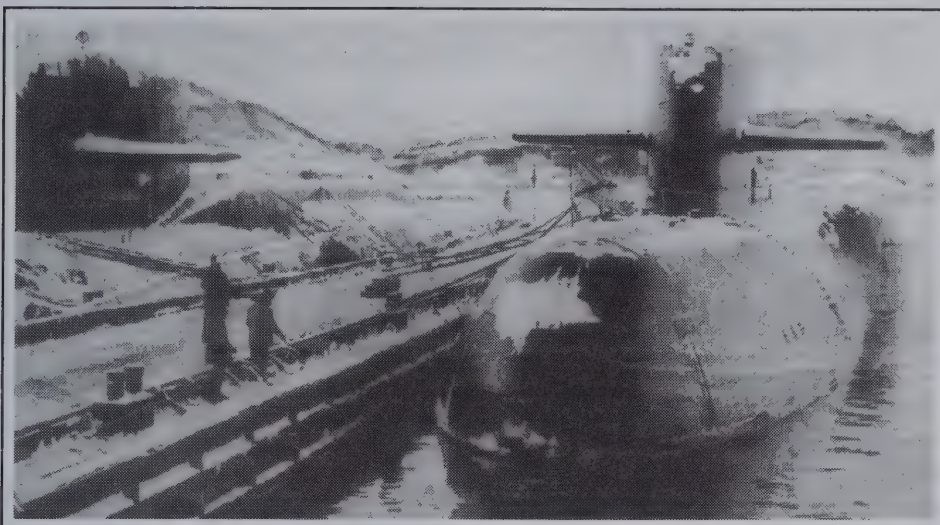
Funds will be shifted from the Navy to independent civilian contractors in order to achieve some savings. Scientists will also be required to stay in Antarctica only long enough to make observations and gather data, and then return home to analyse the information and prepare reports.

The NSF dome, which provides cover for the station, will be returned to the US and replaced with two horseshoe-shaped buildings on stilts which will resist settling in the snow and ice. The US also hopes to refurbish McMurdo Station on Ross Island and Palmer Station on the peninsula. The US will also ask Britain, New Zealand and South Africa to help with logistics and costs. □ (cb Peter Barretta Jr.)

Secret Life of Seals

Newsweek, 2 March 1998—On "Star Trek," the final frontier is space. For marine biologists, it's the ocean below the Antarctic ice pack. Now scientists from the University of Texas at Galveston are getting some tantalizing clues about life in those icy waters, thanks to an infrared camera mounted on the head of a Weddell seal. Project head Randall Davis says, "We've observed seals blowing into the crevices in the ice to flush out hidden fish. That was a surprise." Another one is that seals don't use flippers on deep descents. "Below 250 feet, they become negatively buoyant," Davis says. "In other words, they just sink." Highly illogical, Spock might say, but the camera never lies. □ (multiple contributions).

Russian Subs Are Nuclear Disaster



Decommissioned Russian nuclear submarines float at their Arctic base of Severomorsk, waiting to be dismantled.

Columbus Dispatch (AP), 25 November 1997, p. 2A, MOSCOW—Once instruments of doomsday during the Cold War, scores of mothballed nuclear submarines are rusting away in Russian harbors, threatening to unleash radioactive waste that could bring environmental ruin.

Russia's cash-strapped government can afford to dismantle only five or six of the vessels a year. So far, just 16 of the 156 retired nuclear submarines have been fully disassembled. Another 100 subs are slated to go out of service by 2000.

Russia has called NATO to help assess the problem.

"When we were building up our nuclear potential, no one thought about the need to dispose of the waste some day," Ashot Sarkisov, a member of the Russian Academy of Sciences, said yesterday.

"It's a lesson for the future—before building something nuclear, we must first think what to do with it later," he added.

"Scientists who used to devote their resources to defense now should devote their efforts to peaceful purposes," said Nancy Schulte, an official with NATO's Disarmament Technologies, Scientific and Environmental Affairs Division.

"Our economy is ill," Sarkisov said. "And our leaders clearly downplay the potential danger."

Dismantling Russia's old submarine fleet is expected to cost hundreds of millions of dollars.

Until 1990, the Soviet Navy routinely dumped radioactive waste in Arctic waters, and the Russian Navy continued the practice in the Far East until Japan agreed to assist in a waste disposal project.

Other nations also have promised help.

Norway, cautious about possible contamination of fishing waters and marine life, has promised \$35 million to help clean up Russian naval bases in the Arctic and Far East. The United States is helping build a waste disposal plant in Murmansk, near Russia's border with Finland.

Still, Russia cannot afford to build Western-type facilities for storing submarine nuclear reactors. In fact, it still lacks capabilities to simply unload spent fuel from those reactors—the first step in a long process of scrapping a submarine.

Russia's Atomic Energy Ministry, in charge of reprocessing nuclear waste, has only four rail-

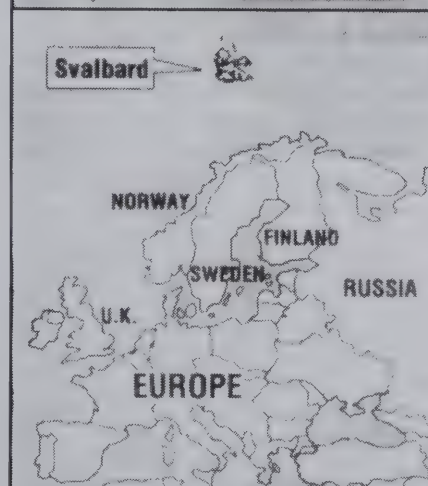
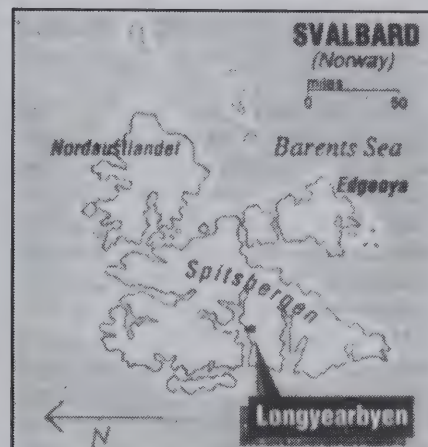
way cars capable of carrying radioactive waste. As a result, more than 60 percent of the mothballed submarines still have fuel in their reactors, making them prone to accidents.

"The main danger would be some sort of accident like a fire, an explosion in one of the facilities that has a lot of radioactivity stored," said Leo Gay LeSage, a researcher with Argonne National Laboratory of Lemont, Ill., who took part in the seminar.

Russian authorities jailed a retired Navy captain on espionage charges after he helped a Norwegian environmental group, Bellona, write a 1994 repose on the troubled state of nuclear waste storage at the Russian Northern Fleet. □ (cb Peter Anderson)

(See associated article Vol. 2 No. 10, p. 18—Ed.)

Norway Provides Northern Satellite Services



The Tinet report, January 1998, p. 3, by Michael Brady, OSLO, Norway—A satellite station is being developed by the Norwegian Space Center on Spitsbergen Island in the Svalbard archipelago in the northern Arctic ocean. Because of its location, the Svalbard Satellite Station (SvalSat) is the only station which can access a polar-orbiting satellite on all 14 of its daily revolutions around the Earth.

NASA is the first customer using SvalSat for Landsat and EOS satellites. A transportable launch base for scientific rockets is being set up still farther north on Spitsbergen Island in the town of Ny-Alesund. The location is within the northern auroral zone, which is the circle around the north magnetic pole where the aurora are most frequently seen. It is ideal, as Svalbard is the only place in the world where it is possible to study the day-side aurora against a dark sky. Named Svalbard Rocket (SvalRak), the base is now being readied for Isbjorn I ("Polar Bear I"), the first rocket that will carry a Norwegian payload. □ (cb Bob Gleason)

View to the Heavens, View to the Past

South Pole astrophysics comes of age

Antarctic Sun, 13 December 1997, p. 1, story and photos by Alexander Colhoun, AMUNDSEN-SCOTT SOUTH POLE STATION, Antarctica—Just eight years ago modern astronomy made its debut at the South Pole. For astrophysicists like Fred Mrozek, the experiment has been an unabashed success.

"This is the best place in the world for near infrared astronomy," said Mrozek. "The conditions here are close to ideal and better than any other place on earth for this kind of astronomy."

Dr. Tony Stark, an astronomer from the Smithsonian Astrophysical Observatory in Cambridge, Mass., was equally enthusiastic. "This is the next place where astronomy will take off," said Stark. "The observing here is just too good."

Stark should know. A denizen of the astronomical world, he's been probing the universe for a quarter century, the last decade of which has been focused on the South Pole.

"Eight years ago we set up our observatory on the snow, nailed a floor down, set up our telescopes beside a preway heater and took measurements," said Stark. Conditions have changed dramatically.

Today the South Pole boasts a growing astronomical observation platform, enhanced this season with the completion of the Viper telescope observatory, rounding out a team of three scopes situated at the Pole. Viper's quarters, elevated on stilts to limit snow build-up, are the envy of many a South Pole worker. With its carpeted floors, central heating and skylight windows, the new facility is as handsome as it is cutting edge.



PHOTO: ANTARCTIC SUN

Fred Mrozek makes adjustments to the SPIREX infrared telescope, which he built by hand. SPIREX is one of three telescopes at the South Pole, a location some astronomers are calling the next place where astrophysics will take off.

What makes the South Pole so special for astronomical research is as starkly obvious as the Antarctic winter: it is cold, it is dark and it is isolated.

In other words, the atmosphere above the South Pole is nearly transparent, allowing a significantly greater amount of light waves through to the earth than most other geographic locations. That doesn't mean Stark and his fellow researchers will be getting a better tan.

The vast majority of this light is not visible.

In reality, astronomical research is carried out across the electromagnetic spectrum, from shorter wavelengths just above visible light, to longer wavelengths, such as millimeter light, which is similar to a radio wave.

At the South Pole, the Spirex telescope searches a band of light in the near infrared zone while Viper and the Astro telescope search the submillimeter and millimeter ranges respectively.

According to Stark, the only rival to the South Pole observatory is located atop 14,000-foot Mauna Kea in Hawaii, and even there, observa-

tions can be made only ten percent of the time due to moisture in the air.

That leaves space missions as the only alternative, one that Mrozek dispatches with common sense budget talk. "Working here costs one tenth of one percent of a satellite mission," said Mrozek. "You just can't beat that." Other drawbacks to space-born technology are time and size.

Putting a telescope into space can take from 10 to 15 years, during which time the technology is "frozen" in the launch vehicle due to payload constraints. At the South Pole, key telescope elements can be replaced or upgraded with the latest technology over the summer season. In addition, telescope size is severely limited on space missions, while Antarctic instruments have few size constraints.

"CARA's (Center for Astrophysical Research in Antarctica) mission was to demonstrate the quality of this site and the feasibility of working here," said Stark. "We've done that and more. This is a turning point in Antarctic astronomy." □ (cb Billy-Ace Baker)

Scientist Predict Space Weather Storm

Explosion on sun sets off dramatic arctic and antarctic auroral displays

Antarctic, Vol. 15 No. 2, 1997, p. 41—The first successful prediction of a major space weather storm was made earlier this year.

On 6 January, researchers observed a magnetic cloud, produced by a major disturbance on the Sun, heading towards Earth. It resulted in a significant magnetic storm on 10 January.

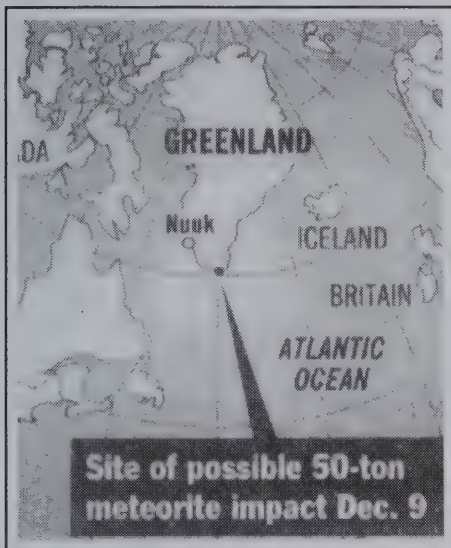
British Antarctic Survey experiments at Halley Research Station show the storm hit the south polar region early on the morning of 10 January, causing disruption to operational communications with field parties and affecting air operations for much of the rest of the day.

Scientists involved in the International Solar Terrestrial Physics Programme (ISTP) had gathered for a workshop meeting. The group uses about 20 research spacecraft, a wide range of ground-based research facilities and computer simulations to study solar storms and their effects on Earth. They watched with excitement as successive research spacecraft and ground-based systems detected the disturbance (known as coronal mass ejection) making its way to Earth and finally giving rise to dramatic auroral displays over the Arctic and Antarctic.

"It was a very exciting moment," said Dr. John Dudeney, head of the Upper Atmospheric Research at the British Antarctic Survey. "For the first time we were able to see birth of a space storm and have sufficient instruments in the right places to follow its effects all the way from the explosion on the sun to the final dumping of gigawatts of energy in to the Antarctic and Arctic atmosphere."

"The unprecedented global coverage we have achieved pushes us a huge step towards providing reliable and practical space weather predictions," he said. (cb Billy-Ace Baker)

Hunt Is On As Ice May Hide Meteor



Fairfax (VA) Journal (AP), 17 December 1997, p. A2, COPENHAGEN, Denmark—Danish Air Force planes searched the vast white expanse of southern Greenland yesterday for traces of a meteor believed to have struck the ice-capped island.

The search was prompted by a giant flash that split the darkness about 5 a.m. Dec. 9. The flash was reported by three fishermen working off Greenland's east coast. A parking lot surveillance camera in Nuuk, the territory's capital on the west coast, also recorded a brief illumination at that time.

...It probably was a 'one-piece solid meteor...'

"According to the accounts, the flash was so huge that we have good reason to believe that this is a giant (meteor)," said Bjoern Franck Joergensen of the Tycho Brahe Planetarium in Copenhagen.

Joergensen said it probably was "a one-piece, solid meteor" that crashed. Most meteors travel at more than 7,500 mph and explode or break up as they enter the atmosphere.

Joergensen would not speculate on how large the meteor may have been.

The search has been hampered by heavy snowfalls that could easily bury even a large meteor or obscure its crater. □ (cb Peter Barretta Jr.)

A Return Visit of an 'Aurora Australis' To Its Origin

by Abel Shafer

Aurora Australis is the title of the first book printed in Antarctica. Less than 100 copies are known to exist. It was handbound with twine, the covers made from packing cases, and seal skin.

In 1907, Ernest Shackleton commanded the *Nimrod* Expedition, a south polar expedition. During the expedition (1907-09), team members wrote, edited, illustrated, printed and bound a record of the expedition in the hut at Cape Royds, Ross Island, not far from the current base of McMurdo Sound, Antarctica.

A printing press, small etching press, paper, hand-type and ink were taken to the hut for the purpose of producing a book. Ernest Joyce, Frank Wild and George Marsten had hurriedly been given instructions in the use of these materials. The work was done in the cold, dark winter.

Because of his interest in Antarctica, polar book collector Joe Bugayer of Seattle, Wash., had acquired a copy of *Aurora Australis*. He wanted to take it on a voyage back to the place where it had been produced.

In November 1991, Joe made an attempt to reach Cape Royds from the *M/S World Discoverer*, a tour ship that sailed to McMurdo Sound. Unfortunately the ship struck an uncharted rock just offshore. With a hole in the hull of the *World Discoverer*, the landing at Cape Royds was aborted and the party retreated north for repairs - Joe and his book had to wait.

In January 1997 Joe returned, this time aboard Russian icebreaker *Kapitan Khlebnikov* - part of an expedition that circumnavigated Antarctica.

On January 9th, the *Khlebnikov* stood off Ross Island in McMurdo Sound. Despite snowy and overcast skies, the ship's helicopter flew passengers ashore to Cape Royds—Joe Bugayer among them.

A very happy Joe had brought back his copy of *Aurora Australis* for the first time in 90 years to its place of origin. The photo shows Joe and book in the hut, among the packing crates used as covers, at Cape Royds, McMurdo Sound, Antarctica. However, Joe, in his excitement, forgot to bring the celebratory bottle of champagne. □

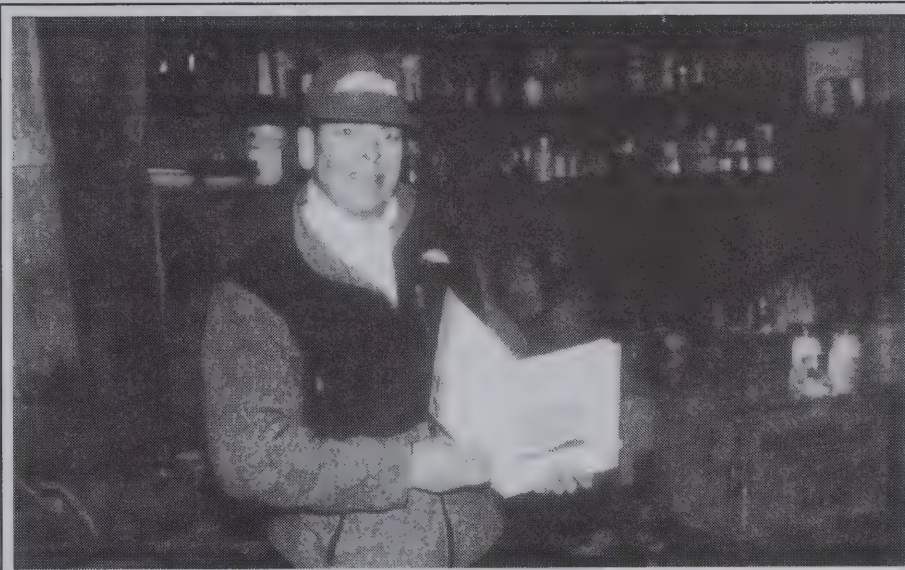


PHOTO: ABEL SHAFER

Japan Ratifies Antarctic Protocol Into Effect,

Associated Press (NY), 16 December 1997, TOKYO (AP)—Japan today ratified an international accord to protect the Antarctic environment, becoming the last nation to do so among the 26 nations that adopted the protocol in 1991.

With Japan's ratification, the Protocol on Environmental Protection to the Antarctic Treaty

went into effect Jan. 14, said a Foreign Ministry official.

Japan delayed ratification because it needed to adopt domestic laws to meet the protocol's requirements.

The U.S. Congress voted to ratify the protocol last September. □ (cb Billy-Ace Baker and Peter Anderson)

Air National Guard Prepares for Airlift Transition

Antarctic Sea, 15 November 1997, p. 11, by Major Robert E. Bullock, Public Affairs Officer for the 109th Airlift Wing—Since 1988 the Air National Guard has been flying in Antarctica, working in a complementary role to the Navy. Beginning with the 1998 season, that relationship will change as the Air National Guard assumes command and control of LC-130 operations in Antarctica.

From a polar perspective, the Guard began flying in Greenland in 1975 with the 109th Airlift Wing. The mission then was to transport fuel, cargo and personnel to ensure the effective and ongoing operations of the Defense Early Warning (DYE) site radar installations located across Greenland. The Guard took to the rigors of this cold weather, Cold War mission immediately.

Several years after the inception of the unit's ski flying in Greenland, the National Science Foundation requested the support of the 109th in their Arctic-based polar research programs. A decade later the foundation again requested augmentation of their polar requirements, this time in Antarctica. Thus, in 1988 the Schenectady, NY-based unit of the 109th first made their long trip south to work with the U.S. Antarctic Program in a support role.

The chief benefit of the use of the Guard in the provision of LC-130 airlift is continuity. Unlike active duty missions where an aircrew member may work in a mission for three years before shifting jobs for reasons of career progression, many Guardsmen will spend several decades flying and maintaining one type of aircraft. With the 109th having flown in the Arctic for 22 years and at both poles for nine years, aircrews often bring more than two decades of ski flying experience to their bipolar responsibilities. In fact, the Air Commander of the 109th, Col. Graham Pritchard, has spent more than 28 years piloting LC-130s.

From a National Science Foundation perspective, the consolidation of bipolar airlift in one unit results in the creation of a concept known as "single point management." This means economies-of-scale and lower logistic operating expenditures for the foundation.

At present, the 109th maintains a fleet of eleven C-130 aircraft, seven of which are ski-equipped. Of this number, last year the unit received three factory-fresh LC-130 H3s, the newest and most sophisticated aircraft of its kind in the world.

From a personnel standpoint the 109th will consist of approximately 1,300 members. Of that

number, approximately 500 are full-time.

In 1997, a new chapter begins in the history of the Department of Defense's presidentially-directed support of science in Antarctica. The 109th is honored to have been selected to assume this important role and to follow in the footsteps of its Navy brethren. (See "Operation Deep Freeze," p. 13) □ (cb Billy-Ace Baker)

Tourism Plan For Scott Base

The Press, 25 April 1998, CHRISTCHURCH, New Zealand—Mr Tim Higham, of Antarctica, New Zealand, confirmed that New Zealand has been discussing the possibility of supporting tourism from Scott Base and that tourism is on the agenda for a workshop in Christchurch from April 28-30, 1998.

Mr Higham confirmed that tourism scenarios would be discussed, and the kind of responses New Zealand could make. He agreed that use of Scott base for tourism would be a major policy shift for New Zealand, and it was premature to say that the policy would change.

At present, 500 to 1,000 people visit the Ross Sea a year, mainly from cruise ships. However, the Antarctic Peninsula, which is serviced from South America, receives 10,000 visitors annually. (See "Australia Considers..." p. 20) □ (cb Billy Ace Baker and Peter Anderson)

Of Icebergs and Ships' Hulls

Antarctic Society Newsletter, by Paul Dalrymple—While seasonal ice folks flew north to places like Fiji and Borneo, the crew of *M/V Greenwave* contemplated Davy Jones' Locker, and the USAP came uncomfortably close to providing a southern version of *Titanic*.

The *Greenwave* is a large cargo container ship used each year to resupply McMurdo Station, South Pole and New Zealand's Scott Base. Approximately two days out from McMurdo, the *Greenwave's* propulsion system became badly disabled right smack in the middle of Antarctica's notorious Iceberg Alley. Iceberg Alley is like a backwoods-bowling lane on a Saturday night. It is the home of Antarctica's wayward icebergs and growlers which rage around the continent, borne upon a band of rollicking sea between 60 and 70 degrees south latitude. And if icebergs and big ocean are not enough for a foundering ship, this region also experiences nightfall! Imagine bobbing around in that frigid soup! The U.S. Coast Guard Icebreaker *Polar Sea* was able (just barely) to tow the *Greenwave* several hundred miles to the comparatively calm waters of New Zealand. Undoubtedly this episode will provide spawn for many a new ice legend! □ (cb Ruth Siple)

Call to Restrict Tourist Visits

Antarctic, Vol. 15 No. 2, 1997, p. 32—A leading Antarctic scientist wants to limit the number of tourists visiting the continent until studies show what effect they are having on the environment.

New Zealand geo-chemist Dr. Doug Sheppard says not enough work has been done on setting up systems monitoring impacts, "let alone research on what these impacts might be."

Nearly 10,000 tourists went to Antarctica last year, with a similar number expected this year. Five years ago, the number was only 3,000. They pay up to \$5,000 per head for the trip, with most tourists coming from the United States, Germany, Britain, and Australia.

Dr. Sheppard said the problem was you can see where people have been on the ice. "There's no vegetation to cover where they've been. The eco-system down there does not recover quickly, and footprints last for decades."

He said New Zealand was in a difficult position because it did not have the resources to manage controls over tourists.

However, Antarctic New Zealand spokesperson Tim Higham says he believed tour groups were being successfully managed with no significant impact on the environment. □ (cb Billy-Ace Baker)

Nuclear-Free Zone

Alaska, December '97-January '98, p. 13—After four years of study, the Office of Naval Research Arctic Nuclear Waste Assessment Program has determined, much to northwestern Alaska's relief, that the former Soviet Union's habit of dumping nuclear waste in the Kara and Barents seas has had no discernible health or ecological impact on coastal Alaska. "What the Russians did is not a problem for us," Pacific Northwest National Laboratory scientist Bruce A. Napier told Nome's community leaders, as reported in the *Nome Nugget*. The evaluation was based on more than 80 research projects involved in the study. □ (cb Peter Barretta Jr.)

Antarctica: A Draw for Tourists

Atlanta Journal/Atlanta Constitution, 4 January 1998, p. C1, by Mike Toner—Swiss nature photographer Bruno Zehnder went out into an Antarctic blizzard to photograph penguins. A search party from a Russian research station found him two days later, frozen to death in the 60-below-zero temperatures.

Grandmotherly Helen Thayer of Seattle hurt her leg while trying to drag a sled across the Antarctic interior. She spent her 60th birthday alone in a tent before being airlifted to safety in Chile.

Six adventurers who paid an adventure travel company \$22,000 to sky-dive at the South Pole in December weren't so lucky. Three of the sky divers' parachutes failed to open, and they plunged to their deaths at the bottom of the world.

It's summer in Antarctica, tourist season in the land of the midnight sun. By mid-March, a record 10,000-plus people will visit the coldest, driest, windiest place on Earth.

For a continent bigger than the United States, the numbers may seem small. But in a land where it's 3,000 miles between gas stations and temperatures dip to 100 degrees below zero, the growing trickle of tourists poses some knotty problems.

"Tourism in Antarctica is a reality," says Stephenson. "In the end, it is going to be like a national park."

"Ten thousand tourists may be more than the Antarctic environment can handle," says Beth Clark, director of the Antarctica Project, a coalition of environmental groups dedicated to protecting the continent. "Tourists are beginning to interfere with scientific research—and accidents in the interior divert search-and-rescue operations from their intended purpose."

Under terms of the Antarctic Treaty's new environmental protocols, which take effect this month, tourists and researchers alike must minimize their impact on the continent and treat it as a "natural reserve devoted to peace and science." The regulation of tourist activity, however, is left to tour operators.

At prices ranging from \$3,000 to \$20,000, anyone can book passage on a dozen ships ranging from small, sumptuous cruise liners to Spartan accommodations on Russian icebreakers and Argentine supply vessels.

So far this season, tour operators have sched-



PHOTO: BRIAN SHOEMAKER

Tourist sightseeing by Zodiac, near the Antarctic Peninsula

uled 92 planned sailings for Antarctic destinations. Most will depart from Chile and Argentina between now and mid-February. And most will spend two or three weeks cruising along the Antarctic Peninsula, where wildlife abounds during the brief austral summer.

For those in more of a hurry, an Australian firm is offering overflights in a leased Boeing 747 out of Sydney, Melbourne and Perth. Fares for the twice-weekly 12-hour nonstop flights over the ice range from \$640 to \$2,560. A \$31 insurance policy is extra.

For the United States, as most nations, Antarctica is a place for astronomy, glaciology, environmental and climate research—not for rubbernecking.

"Our policy is that we don't encourage Antarctic tourism, but we don't actively discourage it either," says Simon Stephenson, operations head for the National Science Foundation's Office of Polar Programs, which manages the U.S. Antarctic Program. "If someone is in trouble, we would of course respond if we can. But when it comes to requests for logistical support, we just say no."

When an Air New Zealand sightseeing jumbo jet crashed into Mount Erebus in 1979, killing all 257 people on board, work at the nearby McMurdo Station, the largest U.S. base in Antarctica, came to a virtual standstill for weeks while bodies were recovered.

If lives are at stake, the "just say no" policy quickly takes a back seat. When a team of trans-Antarctic snowmobilers fell into an icy crevasse a few years back, the United States intervened and flew them to safety. They also sent them a bill for services rendered—\$130,000 for one Antarctic rescue.

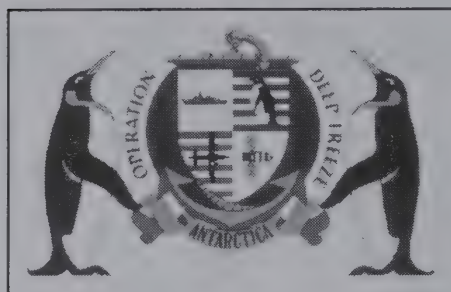
To fill the logistical void, many tour operators provide their own support and rescue capabilities. Adventure Network International, the firm behind December's ill-fated sky-diving expedition, maintains a refueling base—and Antarctica's only private airport—in the Patriot Hills region. At sea, operators of tour vessels keep in touch with other ships in case emergency services are needed.

"These days the tour operators often have more resources at their disposal than some of the governments with Antarctic programs," says Darrell Schoeling, executive secretary of the International Association of Antarctica Tour Operators. Sometimes, tourist ships are even used to resupply government research bases.

Even among clubby "old Antarctic explorers...there is recognition that the growth of tourism is inevitable."

Even among clubby "old Antarctic explorers," hardy old-timers who worked on the frozen frontier before it was so popular, there is recognition that the growth of tourism is inevitable.

"Tourism in Antarctica is a reality," says Stephenson. "In the end, it is going to be like a national park. We can manage it, but we won't be able to just say no." □ (multiple contributors)



Deep Freeze Association Reunion

The Denver Technical Center did a bang-up job of playing host for the Deep Freeze Association. Their reunion held from 7-10 May couldn't have been better according to Dick Bowers who helped to organize it.

Bowers, who was in charge of building the first United States Base at South Pole in 1956, said that the food was good, the camaraderie outstanding and the lectures and field activities most enlightening.

Jerry Marty and Carlton Walker gave specifics of the National Science Foundation's plans to build South Pole III. John Behrendt gave an impressive slide show on the work conducted at Ellsworth Station and Ralph Glasgal related stories about the research activities that took place at Wilkes Station during IGY. There were many tours of interest and a great deal of show-and-tell. Admiral Byrd's daughter, Bolling Byrd Clarke, was there and entertained everyone with tales about her father.

Vice Admiral Lyle Bien of the United States Space Command presented Navy Commendation Medals to four Deep Freeze I Chief Petty Officers - CMC Charles Slaton, SVC George Moss, SKC William Hess and HMC Kenneth Aldrich who played a determinative role during the early days of Deep Freeze.

There was a very impressive Memorial Service held for Antarctic Veterans who have passed on at the Marriott Denver Technical Center Auditorium hosted by the Antarctic Support Associates' Chaplain Dave Stillie.

Attendees included veterans from High Jump, Operation Windmill, Deep Freeze I, II & III, representatives from all seven IGY Stations, scientists, sea-bees, flyers, icebreaker sailors, widows and others.

It was so successful that plans are already being hatched for another in 2001 according to Bowers. □

Brevig Mission Graves Yield Clues

Scientists continue to track deadly flu

Alaska, May/June 1998, p. 17—Health officials, worried that another influenza virus may sweep the world, killing millions as it did in 1918, have looked to Alaska for clues.

Last August, San Francisco pathologist Johan Hultin traveled to Brevig Mission, a tiny village of 200 on the Bering Sea, to collect samples from a corpse he named "Lucy," who died in the 1918 pandemic. The Armed Forces Institute of Pathology confirmed that Hultin's samples have helped scientists map the virus' genetic makeup, which could help in vaccine development.

It is believed that a dogsled mail carrier first brought the virus to Brevig Mission in 1918. Within a week, 72 people died. Hundreds of Alaskans eventually succumbed, along with an estimated 20 million worldwide.

Armed Forces Institute microbiologist Ann Reid told reported, "An influenza pandemic is certain to happen again." The last one was in 1968, and historically the universal outbreaks occur every 30 years. [See related story, Vol. 2, No. 8, pp5] □ (cb Peter Barretta)

Australia Considers Leasing Bases

Antarctic (New Zealand Antarctic Society), Vol. 15/No. 3-1997, p. 55—A recent report recommends that Australia lease two of its three bases to other nations and create a permanent air link and summer tourism in Antarctica.

Compiled by Australia's Antarctic Science Committee, the report (Australia's Antarctic Programme Beyond 2000) also recommends changes to Australia's entire Antarctic programme with more emphasis on practical research with economic and national significance.

"Australia must retain a permanent presence in Antarctica and retain at least one all-year operational station on continental Antarctica," the report said. "But with the expected increasing automation of data gathering the requirement for three year-round stations may diminish."

The report suggests Australia retain Davis base for its central and convenient location and consider sharing or leasing Mawson and Casey bases to other nations. Building a permanent air strip on the continent to improve Australia's links with its Antarctic bases was also recommended. (See "Tourism Plan," p. 18) □ (cb Peter Barretta Jr.)

Sun Dogs

Antarctic Sun, 10 Jan 1998, by Dr. R. Walter Tape—In Antarctica, when you happen to notice ice crystals sparkling in the air around you, be sure to look up at the sky. More often than not you will be rewarded with the sight of circles, arcs, or spots of colored or white light.

These "halos" are formed when the ice crystals act as tiny prisms, breaking sunlight into its spectral colors and concentrating the light in a few special directions. The circular halo is common, as are the sun dogs or "parhelia" that appear on either side of the sun just outside the circular halo.

Visitors to South Pole or Vostok may be treated to a lovely large and colorful arc at the top of the circular halo -this is the upper tangent arc. At this time of year at South Pole part of the lower tangent arc is just visible as a conspicuous bright spot on the horizon below the sun.

Many more arcs are possible, appearing almost anywhere in the sky, and the sky above the polar plateau seems to be the best place in the world to see them.

In project S-208, Dr. Robert Greenler, Dr. Gunther Konnen, and myself are studying Antarctic halos and the ice crystals that make them. We photograph the halos, both with time-lapse video cameras and with normal cameras. At the same time, we collect and photograph the responsible ice crystals, in hopes of figuring out which types of crystals make which types of halos.

We are also trying to understand why the Antarctic halos seem often to be so much better than halos elsewhere; the halos are evidently trying to tell us that atmospheric conditions here are somehow special. But we also think that these halos deserve study for their own sake, as beautiful and characteristic features of the Antarctic environment. □ (cb Billy-Ace Baker)

BOOK REVIEWS

To the Pole; The Diary and Notebook of Richard E. Byrd 1925-1927.

Edited by Raimond Goerler, Ohio State University Press, Columbus, 161 pp; ISBN 0-8142-0800-2.

Review by Brian Shoemaker

Dr. Raimond Goerler has reopened the issue as to whether Richard E. Byrd actually made it to the North Pole by aircraft in 1926 (See Polar Times Vol. 2 No 8, pp 8-13) by publishing the critical pages of a diary that Byrd used as a navigation notebook during the flight. Goerler discovered the document in 1994 when he was cataloging Byrd's papers for Ohio State university and presented it to astronomer Dennis Rawlins who, after examining it, announced that Byrd had not come within 150 miles of the North Pole and that erased navigational calculations proved it.

Goerler notes that Byrd recorded his preparations for the flight in his diary and, during flight used it as a message pad to communicate with Floyd Bennett since the noise of the engines drowned out verbal communications. Byrd also wrote navigational calculations on the leaves of his diary and photographs of those crucial pages are presented in the book together with a copy of Byrd's official report on the expedition to the National Geographic Society. He also includes a more balanced view than given by Rawlins or in press accounts of Rawlins findings. To do this he footnotes reviews by Lt.Col. William E. Molett a retired Air Force Master Navigator and Ohio State astronomer Gerald Newsom as well as that of Rawlins. According to Goerler, Newsom concludes that Byrd "got within 'ten miles' of the North Pole and may have reached it" while Molett "believes ... that there is no discrepancy between the [Byrd's] official report and the diary" i.e. that Byrd made the North Pole. Both Molett and Newsom agree that the erasure in the diary is a miscalculation that was not used by Byrd.

I strongly recommend this book! It is very well researched and Rai Goerler has definitely shed new light on the subject. There is one drawback; it does not settle the issue! The reader is left with the choice as to whether to believe Rawlins or Molett and Newsom.

Before anyone makes up their mind I would like to add my own footnote - the footnote of a professional aviator. Navigation for aviators is a life or death proposi-

tion. Every time we take off and fly over the horizon we stake our life upon our navigational expertise as did Admiral Byrd and Floyd Bennett. We gamble that we can solve our navigational problems and land before we run out of fuel. It is not the academic exercise that this controversy has made it out to be and it does not just involve astronomy. There are other factors involved such as wind drift, torque causing heading creep due to dissimilar thrust of engines, precession of compasses due to engine induced magnetic fields, increasing airspeed as fuel burns down, etc. while coping with cold, aircraft vibration, turbulence, shifting of fuel and other non navigational duties. Navigators must figure out where they are, where they want to go and then GO - they have no time to ponder and pontificate about their navigational calculations.

With all due respect to Dr. Newsom who sides with Byrd and Dr. Rawlins who does not, Lt. Col. Molett is the only one of the group qualified to judge whether Byrd and Bennett made the North Pole. He has safely navigated to the pole and back 91 times basically using the same instruments that Byrd did and he taught polar navigation for the US Air Force for many years.

Of the three above, which one would the reader choose to pass judgment on Byrd's navigation? A better question - which one would the reader choose to safely navigate his aircraft to the North Pole and back? I'd fly with Bill Molett as my navigator any day and I'd fly with Richard E. Byrd in a heartbeat!

Forty Years On Ice: A Lifetime of Exploration and Research

By Charles Swithinbank; Transatlantic Publications; 228 pages; ISBN 1-85776-261 4

Review by John Splettstoesser

After reading Charles's first book on his professional life, *An Alien in Antarctica*, I wondered how he might top that with another, but he has. *An Alien...* is about his six expeditions to the New Zealand side of Antarctica, but *Forty Years on Ice* is about nearly all the rest, told in 19 chapters. Each chapter contains a first-hand account of what 40 different men might have accomplished in their professional careers, but here in 40 years, Charles has done all of it alone, from circumnavigating Baffin island in an ice-

breaker (1956, Chap. 1) to his extensive work with the British Antarctic Survey, and since his retirement with the Adventure Network International in its exceptional 12-year history of transporting clients to the interior of Antarctica with wheeled aircraft landing on blue-ice runways (1987-88 and continuing, Chap. 19).

Between those chapters are accounts of his cruise on the icebreaker *SS Manhattan* through the Northwest Passage in 1969, then on a submarine under the ice at the North Pole. He also has hundreds of hours of flying in Antarctica doing a variety of field work, as a passenger and also as co-pilot, much of it involving radio-echo sounding of glacier thickness. In fact, much of Charles' polar life revolved around ships and aircraft, and each activity is a story in itself.

As with his first book, this one is a first-class product with first-class color photographs and high-quality paper. In addition to publishers, a personal autographed copy may be obtained from the author by writing to Charles at 7 Home End, Fulbourn, Cambridge, CB1 5BS, UK; US \$47.50.

Safe Passage Questioned: Medical Care & Safety for the Polar Tourist

Edited by John Levinson and Errol Ger; Cornell Maritime Press; 175 pages; ISBN 0-87033-504-9 (paperback); \$24.95

Review by John Splettstoesser

Dr. John Levinson, MD., experienced ship surgeon and past President of the Explorers Club, was the motivator behind a conference on medical aspects of polar tourism, held at the Scott Polar Research Institute, Cambridge, England, Oct. 29-31, 1995. Medical experts from Antarctic Treaty Parties and tour companies attended and provided the presentations.

There are certain risks involved in polar tourism, ranging from safety practices on board vessels and associated transport vehicles such as Zodiac-type craft and helicopters, physician qualifications, medical equipment and supplies, medical emergencies, types of injuries encountered, liability issues, and so on. The volume addresses these issues and more to form a handbook for both tourists and tour operators to plan for and conduct safe tourism in polar regions, where the nearest medical facility might be a thousand miles away. (Paperback, at booksellers, or by calling 1-800-638-7641 in the U.S.)

Obituaries

Charles W. 'Smokey' Stover decorated WWII fighter pilot

MELBOURNE, Fla.—Charles W. "Smokey" Stover, 80, an Air Force pilot who won the Distinguished Flying Cross during World War II, died Saturday at a Melbourne hospital.

During World War II, Maj. Stover flew numerous combat missions in P-38 Lightning and P-51 Mustang aircraft with the 364th/384th Fighter Group, with the 8th Air Force out of England.

In September 1952, while he was stationed at Thule AFB in Greenland, he was aboard a plane that crash-landed on the polar ice cap while on a mission to drop supplies to a British scientific expedition in northern Greenland.

"You couldn't distinguish white sky from white ground," he told a *Press Herald* reporter in 1952. He injured his back and leg in the crash, and the crew, which included 11 British soldiers, was stranded for eight days on the ice cap. The plane tore apart in the crash and parts of it burned, but the crew survived the sub-zero temperatures by living in an undamaged section of the fuselage.

The story of their survival and dramatic rescue by an Arctic flying boat appeared in the Dec. 13, 1952, issue of *Collier's Magazine*.

Besides his wife, Marjorie, Stover leaves two sons, Charles W. Jr. of Allen, Texas, and Robert M. of Methuen, MA; nine grandchildren and 10 great-grandchildren. (cb Kendall Moulton)

Waldo Lyon, Arctic Submarining Expert Dies.

San Diego Union Tribune, 16 May 1998, P. 1 by Jack Williams—Dr Waldo Lyon, the father of the Navy's arctic submarine programs died of a heart attack on May 5. He was 83.

From 1946 to 1981, Dr. Lyon was the chief scientist on every undersea expedition to the Arctic Ocean.

"He told me that as an undergraduate he had to choose between a career as a concert master or a scientist," said Robert Anderson director of the Arctic Submarine Laboratory in San Diego. "Dr. Lyon was recognized and consulted as the Navy's single expert on submarine operations under sea ice.

In showing that the under ice submarine was not only feasible, but potentially valuable to this country's defense, Dr Lyons won many awards. They included two Presidential Unit Citations, two Defense Distinguished Service Awards and the Bushnell Medal from the American Defense Preparedness Association. [In 1997 he was elected to "Honorary Membership" in the American Polar Society to which he had served on the Board of Governors for many years. Ed]

He is survived by his wife Virginia; a daughter, Lorraine Walls, of El Cajon, CA; a son, Russell, of Days Creek, Ore.; and three grandchildren.

Cremation was planned, with ashes to be scattered at the North Pole by submarine. (cb Tekla Loeber)

Capt. Donald J. McCann Coast Guard Commander, Arctic Explorer

Press Herald, 10 December 1997, SOUTH PORTLAND, Maine—Capt. Donald J. McCann, 75, a Coast Guardsman who retired in 1973 as group commander in Portland, died Monday at a Portland hospital.

During his colorful Coast Guard career, Capt. McCann was the skipper of five ships ranging in size from 165 feet up to the heaviest in the Coast Guard's fleet, a polar icebreaker.

While he was commander of the icebreaker *Northwind* out of Seattle, that ship distinguished itself as the first to make a round trip in the Northwest Passage in a single season. In 1971, the *Northwind* set a world record for the northernmost penetration of the western Arctic by a ship.

"They made a movie of his voyage, called 'Voyage of the *Northwind*,'" said his wife of 50 years, Elizabeth "Bilba" McCann. It was an award-winning documentary film of the ship's Arctic exploration, she said. "He was the star of the movie.

He traveled as far north as any ship ever had in the winter, she said. "Then he dynamited his way out. He said he wasn't going to spend the winter there.

"People would say he looked like Richard Widmark. I'd be highly insulted. I'd say 'He looks like Spencer Tracy in his prime.'"

Surviving are his wife of South Portland, five sons, his twin brother of Wilmington, N.C., and 11 grandchildren. (cb Kendall Moulton and John Porter)

Meredith Frederic "Pete" Burrill

Antarctic (New Zealand Antarctic Society), 1 November 1997—Meredith Frederic "Pete" Burrill, who in 1943 established the organization that became today's Advisory Committee on Antarctic Names, died 5 October at the age of 94.

His leadership in the early development of Antarctic names policies and principles was instrumental in establishing international uniformity in the geographic nomenclature of the Antarctic. Mount Burrill in Victoria Land, Antarctica, is named in his honor.

A world geographer, Dr. Burrill was executive secretary of the Board on Geographic Names, a Federal body that standardizes names for use by the U.S. government and others. He directed a staff of 175 linguists, geographers, and cartographers who identified more than 2 million place names.

A native of Maine, he was a geography graduate of Bates College and received master's and doctoral degrees from Clark University. Over the years he became one of the world's leading authorities in toponymy, the geographic study of place names.

The 1947 publication *Geographical Names of Antarctica*, which describes 1,400 place names, was his. It showed the way to the 1995 *Geographic Names of the Antarctic*, Second Edition (NSF 95157) with 12,710 names—Antarctica's most complete gazetteer. (cb unknown) □

Polar Society Symposium

The American Polar Society Symposium is shaping up very nicely, thanks to the help provided by the Byrd Polar Research Center at Ohio State University.

Lynn Everett and Lynn Lay have done yeoman work reserving motel accommodations, drafting brochures, ordering box lunches, and a host of other details. Jim Collinson has reserved the lecture hall at the Byrd Polar Research Center. Many thanks to them and others for their continuing work.

The theme of the symposium is The "Polar Pioneers." In it we will focus on polar developments since the late 1920's and then take a look at the future.

The symposium will run from the evening of the 8th through the 10th of October 1998. We begin on the 8th with *Registration* and a *Meeting of the Board of Governors*. The 9th will be a full day of presentations followed by a *reception* and *barbecue* hosted by the Byrd Polar Research Center. The 9th will again feature a full day of presentations followed by the *Awards*

Banquet where we will present *Honorary Memberships* to those who led the way toward understanding the polar regions.

You should all have received a brochure by now. If you need further information, please contact Lynn Everett, ph (614) 292-9909; fax (614) 292-4697; email, everett2@osu.edu.

The registration form below is for your convenience.

See you there!

Brian Shoemaker

REGISTRATION INFORMATION

American Polar Society Symposium • 8-10 October 1998

To register, please complete the following REGISTRATION FORM and return by 15 August 1998.

Please Type or Print Legibly

Name _____

Address _____

City _____ State _____ Zip _____ Country _____

Phone _____ Fax _____ Email _____

_____ Enclosed is a check payable to: The Ohio State University

REGISTRATION

Registration \$60 \$ _____

Late fee \$10 \$ _____

Awards Dinner (Optional) \$30 \$ _____

TOTAL \$ _____

Mail to:

APS Symposium, c/o L. Everett, Byrd Polar Research Center, 1090 Carmack Rd., Columbus, OH 43210-1002

Letters to the Editor

To the Editor:

I would like to commend you on the 1997 Spring/Summer issue of the *Polar Times*. The articles are newsworthy to anyone at all "polarphilic"* and equally interesting to those whose blood prefers the temperatures of equatorial climes.

Shirley M. Metz
Port Townsend, Wash.

P.S. *I just invented this word, as I couldn't find it in Webster's. Peter [Harrison] prefers "polarholic."

To the Editor:

Your articles are so interesting in the *Polar Times*! Little articles such as the one on the arctic mine blast and the plane crash in Svalbard Islands hit me hard because those miners and families put on a beautiful program in Longyearbyen while I was there.

Emma Himeno
Honolulu, HI

To the Editor:

Thanks to you [Capt. Brian Shoemaker] and Della [Weston] for continuing to spark our imaginations and interest in Earth's poles.

John Siegievski
Corvallis, Ore.

To the Editor:

The claim as reported in the *Polar Times*, Vol. 2 No. 10, that "New Zealand has published the world's first set of rules for operators heading south" is totally incorrect. In fact, the first set of rules on tourism was published in 1966 as a result of a joint effort between Philip M. Smith, then head of Polar Programs NSF, and myself, as head of the New Zealand Antarctic Program. These rules were discussed at the Fourth Antarctic Treaty Consultative Meeting in 1966, resulting in Recommendation IV-27 (Effects of Antarctic Tourism) being made to governments.

Copies of these rules were provided to and discussed with Eric-Lars Lindblad prior to the first tourist cruise to the Ross Sea, using the *Magga Dan* in 1967-68. In subsequent years, both SCAR and Antarctic Treaty meetings, in giving attention to tourism and other non-government activities, expanded these rules to include private expeditions.

Robert B. Thomson
Director, N.A. Antarctic Division 1965-1988

To the Editor:

I do enjoy the *Polar Times*. It is very interesting to me, but not to many of my visitors. Strange, isn't it, how our likes and dislikes are so strong.

Mary Jane "MJ" Smith

To the Editor:

Re Vol. 2 No. 10, Page 18, "Russia Plans Arctic Nuclear Plant," I think the "first" floating nuclear power plant was on an old liberty ship—U.S. Army barge—on Gatun Lake, Panama Canal. It was a 10mw plant tied to the Panamanian grid.

Ed Groover

To the Editor:

I am thankful that we have the entire board to continue the founder, August Howard's, efforts. He would be very pleased and proud.

Charlie "CB" Bevilacqua
Littleton, Col.

To the Editor:

I very much enjoyed reading the Fall-Winter 1997 edition of the *Polar Times*. You and the other editors have accomplished a grand job of providing a diverse assemblage of articles to keep the old "arctic hands" and new recruits abreast of recent happenings in the Polar regions.

Max Brewer
Anchorage, Alaska

ANNOUNCEMENTS



PHOTO: U.S. NAVY

USS GLACIER (AGB-4) ASSOCIATION

Reunion Date: September 22-26 1999

Reunion Site: St. Louis, Missouri

Contact: James A. Tinch

901 Chestnut Street

Livingston, TN 38570-1606

1-800-483-7938 Access Code 80

Email: jtinch@twlakes.net

Fourth Reunion

ICEBREAKER EDISTO (AGB-1) (WAGB-284) ASSOCIATION

Reunion Date: Fall 1998

Reunion Site: TBD

Contact: Lyman Smith

69 Everett St.

Middletown, RI 02841

*1-401-849-6384

AMERICAN POLAR SOCIETY SYMPOSIUM

Symposium Date: October 8-10, 1998

Site: Byrd Polar Research Center (BPRC)

Ohio State University, Columbus, Ohio

Contact: Lynn Everett, BPRC

1090 Carmack Road

Columbus, OH 43210-1002

Ph: (614) 292-9909 or Fx: 614-292-4697

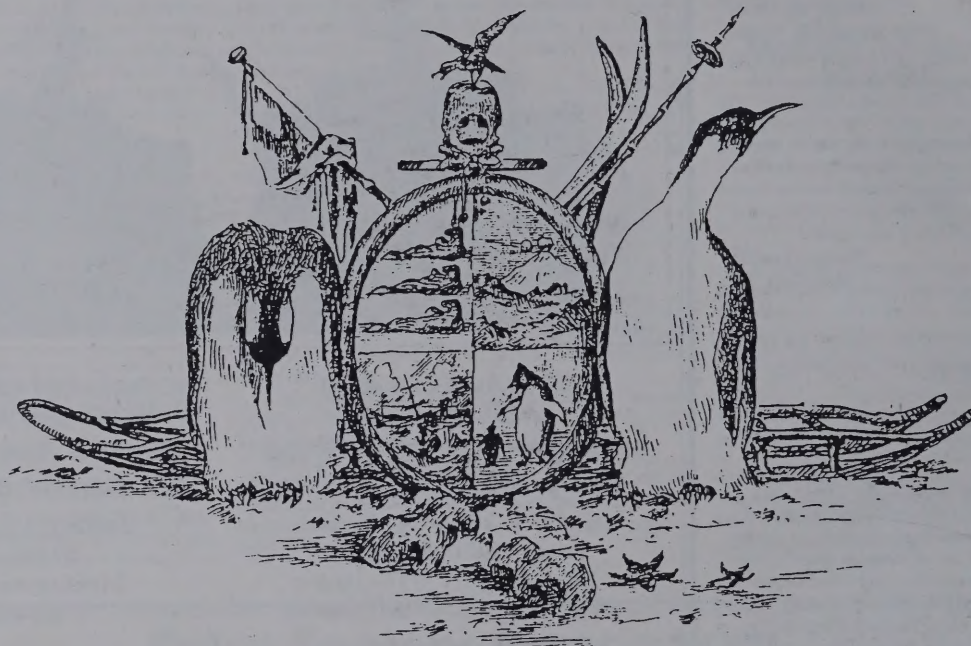
Email: everett.2@osu.edu

As we approach our 64th year of publication, we have learned that our magazine is not the first *Polar Times*. There was a predecessor, the *South Polar Times*. It was begun in 1902 by Ernest Shackleton during the *Discovery Expedition* and taken up again during the *Scott Expedition* of 1911-1912. Shirley Metz, who owns a copy of the first *Times*, has generously allowed us to use the cover of one *SPT* for the back cover of this issue of the *Polar Times*.



American Polar Society membership pins are available.

They are a work of art with an Emperor penguin and a polar bear emblazoned against a background of the sun riding low on the horizon of a pale blue summer sky. This is surrounded by brass lettering of the American Polar Society set in a field of black, symbolic of the six month winter at each of the poles. The price is \$5.00. An order form is inside the front cover.



THE

SOUTH POLAR TIMES

MIDWINTER NUMBER

22 • JUNE • 1903